```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters:

MODEL-framet_n2p.model -DEV=xlp
-G-Cgn2_1/USFTO_Spool/US10009782/runat_07052003_122517_23123/app_query.fasta_1.1927
-DB-Swisspiot_40 -GPMT-fastan -SUFFIX=rsp -MinwATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS-blits -START=1 -END=-1 -MATRIX=blosum62 -TRANS-human40.cd1 -LIST=45
-DCCALIGN=200 -THR_SCORE-pct -THR_MX=100 -HRING-0 -ALIGN=15 -MODE-LOCAL
-OUTFWI-pto -NORM-ext -HEAPSIZE=500 -MINLEN=0 -MAXIEN=2000000000
-USER-US10009782_8CGN_11_19_8runat_07052003_122517_23123 -NCBU=6 -ICPU=3
-NO_MAP -LARGEQUERY -NEG_SCORES-0 -WAIT -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS-1 -XGAPOP=10 -XGAPEXT=7
-YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
"Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM nucleic - protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                   289.
284.
282.
                                                                                                                                                                                                                                                                            2506
1363.5
1000.5
                                                             274
270
269.5
268.5
268
                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xgapop 10.0 , 1
Ygapop 10.0 , 1
Ygapop 6.0 , 1
Fgapop 6.0 , 1
Delop 6.0 , 1
                                                                                                                                                                                                                                                                                                                                                 Match
                                                                                                                                                                                                                                                                                                                                                                   Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   May 11, 2003, 11:55:44 '; Search time 39 Seconds (without alignments) 3739.250 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-009-782-1
3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                             1464
1027
1460
825
                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xgapext
Ygapext
Fgapext
Delext
NDAD_ALCXX
NDED_ALCXX
NDED_ALCXX
VHL1_EBV
YHL1_EBV
YHL1_EBV
AMYH_YEAST
YT13_MYCTU
MUC2_HUMAN
YGY3_HALSO
VNUA_PRVKA
YGY3_HALSO
CA11_HUMAN
CAFE_RIFPA
CA13_MOUSE
CA11_MOUSE
CA11_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225784
                                                                                                                                                                                                                                                                                                    P72349 alcaligenes
                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                  2 alcaligenes
1 alcaligenes
1 epstein-bar
                                                                                                                       pseudorabie
haloferax s
pseudorabie
                                                                    riftia pach
canis famil
mus musculu
                                                                                                                                                                                                                saccharomyc
              mus musculu
                                                    rattus norv
                                                                                                      homo sapien
                                                                                                                                                                             homo sapien
                                                                                                                                                                                               mycobacteri
                                                                                                                                                                                                                                 epstein-bar
```

														C	ı											
, <b>4</b> 5	44	4	4	4	ć		9 0		) 1 0	ب ا ا	4 1		3 2	)  -	2 6	2 6	200	27	26	25	2 4	2	22	21	20	19
229	231	231	231.5	4		233.5	204.0		235.5	12	237.5	238.5	238.5	238.5	239	239	239.5	240.5	242	243.5	244	244.5	252:5	259	259.5	261
6.9	٠		7.0			· -	; <u>;</u>		7.1	7.2	7.2	7.2	7.2	7.4	7.2	7.2	7.3	7.3	7.3	7.4	7.4	7.4	. 7.7	7.9	7.9	7.9
1366	3530	448	2424	1362	1804	1372	1364	1323	1650	620	671	2944	1049	825	1806	1446	1355	1262	555	1372	1461	1418	1459	1255	1453	779
بر	-	Н	-	μ	ш	-	۰,	ب	ш	۳	۳	μ	_ر	_	<u>س</u> و	щ	۲	۳	۳	_	_	ب	Ь	_	<b>ب</b>	_
CA21_CANFA	MY15_HUMAN	ALN_DEIRA	CCAA_RABIT	CA21_CHICK	CALB_MOUSE	CA21_RAT	CA21_BOVIN	NME4_MOUSE	CA2B_MOUSE	EXTN_TOBAC	CA11_RAT	CA17_HUMAN	CA13_BOVIN	5E5_RAT	CA1B_HUMAN	IE18_PRVKA	CA21_RANCA	CA13_CHICK	GP1_CHLRE	CA21_MOUSE	IE18_PRVIF	CA12_HUMAN	CA12_MOUSE	MUC1_HUMAN	CA11_CHICK	CA11_BOVIN
																								٠.		
046392	09ukn7	09rv76	P27884	P02467	061245	P02466	P02465	Q03391	Q64739	P13983	P02454	002388	P04258	263003	P12107	P33479	042350	P12105	ogfpa6	001149	P11675	P02458	P28481	P15941	P02457	P02453
canis famil	homo sapien	deinococcus	oryctolagus	gallus gall	mus musculu	σ.	bos taurus		mus musculu	nicotiana t	rattus norv	0	bos taurus	rattus norv	homo sapien	pseudorable			chla		pseudorabie		mus musculu	h mucin 1	gall	bos taurus

## ALIGNMENTS

		•			•			
DR DR	នននន	នននន	88888	8888	RRRRR	R R R R R R	888 <sup>9</sup> 88	RESI NDA NDA ID DI
EMBL; S80683; AAB35881.1; -; EMBL; D45918; BAA08349.1; -; Hydrolase; Zinc.	ified ities send	right. It is proof Bioinformatic nstitute. There ions as long as	- COPACTOR: ZINC COPACTOR: ZINC SINCELLULAR LOCATION: Cytoplasmic SIMILARITY: BELONGS TO THE N-ACYL-D-AMINO-ACID DEACYLASE FAMILY.	-1- FUNCTION: HAS A WIDE SPECIFICITY; HYDROLYSES N-ACYL DERIVATIVE OF NEUTRAL D-AMINO ACIDS: -1- CAPALYTIC ACTIVITY: N-acyl-D-amino acid + H(2)O - an acid + D-	"Cloning and sequencing of a gene encoding D-aminoacylase from Alcaligenes xylosoxydans subsp. xylosoxydans A-6 and expression of the gene in Escherichia coll.";  Plosed Microphol Microphol 1	SEQUENCE FROM N.A., AND PARTIAL SEQUENCE. STRAIN-A-6; MEDLINE-96100942; PubMed-8541651; MEXAYAMA M., Katsuno Y., Hayashi S., Miyamoto Y., Sakai K., Moriguchi M.		RESULT 1  NDAD_ALCXX STANDARD; PRT; 483 AA.  ID NDAD_ALCXX STANDARD; PRT; 483 AA.  P72349; 008051;  DT 15-JUL-1998 (Rel. 36, Created)  DT 15-JUL-1998 (Rel. 36, Last sequence update)  DT 15-JUL-1998 (Rel. 36, Last sequence update)  DT 15-JUL-1998 (Rel. 36, Last annotation update)  DT 15-JUL-1998 (Rel. 36, Last annotation update)

```
Ş
               Ş
                            밁
                                     S
                                                밁
                                                                   밁
                                                                           ð
                                                                                      B
                                                                                               8
                                                                                                          밁
                                                                                                                 5
                                                                                                                             밁
                                                                                                                                    . 5
                                                                                                                                                 밁
                                                                                                                                                         S
                                                                                                                                                                              Š
                                                                                                                                                                     밁
                                                                                                                                                                                        밁
                                                                                                                                                                                                δÃ
                                                                                                                                                                                                           문
                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                      ٠.6
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                         Pred.
Score:
                                                                                                                                                                                                                                                                                                                                                             SQ.
                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                            -10-009-782-1
                                                                                                                                                                                                                                                                                                                                                            INIT_MET
                  877
                                     817
                                               241
                                                                             697
                                                                                                637
        281
                            261
                                                         757
                                                                  221
                                                                                      201
                                                                                                          181
                                                                                                                   577
                                                                                                                             161
                                                                                                                                       517
                                                                                                                                                 141
                                                                                                                                                          457
                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                              ĕ
                                                                                                                                                                    121
                                                                                                                                                                              397
                                                                                                                                                                                                 337
                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                         217
                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                           81
                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                     21
                                                                                                                                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                                         ш
                        GACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCC
                                                               ATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGC
                                                                                   AspAlaTyrProTyrValAlaGlySerThrMetLeuLysGlnAspArgValLeuLeuAla
                                                                                                                                                                                                       GCGCCGCTGGCAACGCCAACCCGCCCGCCCCTGGAACCTGCTGGAACGAAGGCGGCTCT
                                                                                                                                                                                                                                               GlyAspLeuSerAspAlaAlaAlaHisThrArgValAspValSerGlyLeuValValAla
                                                                                                                                                                                                                                                     GGCGATCTGTCGGACGCCCCCCCCCCCCCCCGGGTCGACGTGTCGGGCCTGGTGGTCGCG
                                                                                                                                                                                                                                                                                                            (1-1758)
                                                                                                                                                                                                                                                                                                                                                             483
                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                            À,
                                                                                                                                                                                                                                                                                                                        2.41e-98
2506.00
100.00%
100.00%
75.96%
                                                                                                                                                                                                                                                                                                           x NDAD_ALCXX
                                                                                                                                                                                                                                                                                                                                                            0
51921
                                                                                                                                                                                                                                                                                                                                                            WW;
                                                                                                                                                                                                                                                                                                                                                            4E93000C8AA97987
                                                                                                                                                                                                                                                                                                           (1-483)
                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                    876
      300
               936
                                                       816
                                                                                                                                                                  140
                         280
                                             260
                                                                240
                                                                         756
                                                                                   220
                                                                                              696
                                                                                                       200
                                                                                                                 636
                                                                                                                          180
                                                                                                                                    576
                                                                                                                                               160
                                                                                                                                                                            456
                                                                                                                                                        516
                                                                                                                                                                                      120
                                                                                                                                                                                               396
                                                                                                                                                                                                        100
                                                                                                                                                                                                                  336
                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                   40
                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                      276
                                                                                                                                                                                                                                                          216
                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                96
맑
                                                                                                                                                                               δÃ
                                                                                                                                                                                         ₽
                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                             뒪
                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                              Ş
             STRAIN-A-6;
STRAIN-A-6;
MEDLINE-93372486; PubMed-7763985;
MOTIGUCHI M., Sakai K., Katsuno Y., Maki
"Purification and characterization of not
                                           CHARACTERIZATION.
         Biosci. Biotechnol.
                                                                                                                                                                      481
                                                                                                                                                                                          461
CATALYTIC aspartate.
```

```
ALCXX
NDDD_ALCXX
STANDARD;
P94212;
15-UUL-1998 (Rel. 36, Last sequence update)
15-UUL-1998 (Rel. 36, Last sequence update)
15-UUL-1998 (Rel. 36, Last annotation update)
                Moriguichl M.; "Cloning, expression, and nucleotide sequence of the N-acyl-D-aspartate amidohydrolase gene from Alcaligenes xylosoxydans suxylosoxydans A-6.";
                                                                                                                                                                              Alcaligenes xylosoxydans xylosoxydans (Achromobacter xylosoxidans).
Bacteria; Proteobacteria; beta subdivision; Alcaligenaceae;
Achromobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                               1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1417
                                                                                      Wakayama M., Watanabe
                                                                                                                          SEQUENCE
                                                                                                                                                           NCBI_TaxID=515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     441.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                            ThrAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCAGGĆCGGGTACTTCGCCGACCTGGTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCCTGGGCCCTGTTCCCGCTGGAGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCCGCGCCTGTGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGCCATCTACATGATGACGACCGACCTGCAGCGCATCCTGGCGTTCGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGCCCCC 1485
                                                                                                                         FROM N.
Bioeng.
                                                                                                                                                                                                                                                                                                                                                                                                            483
                                                                                    E., Takenaka
                                                                                    Y., Miyamoto
                                                                                    ۲.,
                                                                                    Tau
                               subsp.
                                                                                  Sakai
                                                                                    .~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1056
```

ACTIVITY:

Biochem. 57:1145-1148(1993)

xylosoxydans subsp.

., Wakayama m., il N-acyl-D-aspartate subsp. xylosoxydans

aki T.,

N-acyl-D-aspartate

+ H(2)0

1

carboxylate

Ġ

```
Ş
                                                            밁
                                                                                   Ş
                                                                                                               В
                                                                                                                                     Ş
                                                                                                                                                                В
                                                                                                                                                                                        Š
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-009-782-1 (1-1758) x NDDD_ALCXX (1-498)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D45919; BAA08350.1; -. Hydrolase; Zinc.
                                                                                                                                                                   175
                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                      135
                                                                                                                                                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                   ATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGGTGGTG 777
                                                                                                       {\tt GlyThrPheTyrProProAlaSerAlaAlaProThrAspGluIleIleAspValCysGln}
                                                                                                                     GGCGCCTTCTACCCGCCGCCGCCGCCGCGCGCCACCGAAGAGATCATCGAGGTGTGCCGG
                                                                                                                                                         AlaAlaMetArgAlaLeuLeuAspGluAlaLeuGlnAlaGlyAlaPheGlyValSerThr
                                                                                                                                                                                                                                   TCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAAATC
                                                                                                                                                                                                                                                                                                                                                               ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBCELLULAR LOCATION SIMILARITY: BELONGS
GCGGCCATGCGGACCTGGCCAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGACC
                                                                                                                                                                                                          TACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                                                                                                                                                           TrpLeuArgAlaLeuAlaGluThrProAlaAlaValAsnValIleProLeuValGlyH1s
                                                                                                                                                                                                                                                                                                             {\tt ProGlnProLeuAspLeuLeuGlyProProGluLeuPheArgPheAlaThrPheArgAsp}
                                                                                                                                                                                                                                                                                                                                       CCCGCCCCCTGGACCTGCTGGACGAAGCCGGCTCTTACCGTTTCGAGCGCTTCGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                  CACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValProValIleAspAlaArgGlyLeuAlaLeuAlaProGlyPheIleAspSerHisThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspLeuAlaValArgGlyGlyArgIleValAlaLeuGlyAspPheAlaHisAlaProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCTGGGCGTGCGCGACCGATCGCCCATCGGCGATCTGTCGGACGCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspPheIleIleAlaGlyAlaThrLeuIleAspGlyGlyGlyGlyProAlaArgGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COFACTOR: ZINC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           498 AA; 53584 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: Cytoplasmic.
BELONGS TO THE N-ACYL-D-AMINO-ACID DEACYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.31e-50
1363.50
68.64%
57.63%
41.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EAFF8662891F9F1B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              498
272
52
147
                                                     234
                                                                                                       214
                                                                                                                                                          194
                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                  114
                                                                                                                                                                                   600
                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                             154
                                                                                                                                                                                                                                                                                                               134
                                                                                                                                                                                                                                                                                                                                                                                                                    94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       54
```

```
OCCUPACE COCCOS STATES AND COC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  日
                                                Sakai K., Moriguchi M.;
"Primary structure of N-acyl-D-glutamate amidohydrolase
Alcaligenes xylosoxydans subsp. xylosoxydans A-6.";
J. Biochem. 118:204-209(1995).
                                                                                                                                                                                                                                                                                                                                                              Alcaligenes xylosoxydans xylosoxydans (Achromobacter xylosoxidans).
Bacteria; Proteobacteria; beta subdivision; Alcaligenaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALCXX
                                                                                                                                                                Wakayama M., Ashika T., Miyamoto Y., Yoshikawa
                                                                                                                                                                                              MEDLINE=96015170; PubMed=8537313;
                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-acyl-D-glutamate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1318
                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=515;
                                                                                                                                                                                                                                                                                                                                                                                                                                    amidohydrolase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NDED_ALCXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1138 CTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1078 GACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                335 LeuAspAspGluAlaAlaIleAlaArgLeuAlaProAlaGlyAlaIleTyrPheLeuwet
               CATALYTIC ACTIVITY: N-acyl-D-glutamate + H(2)0 =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGTTCACCGGCCAGCATGCCGGCGCGCGTGCTCGCA 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCGCGCCGCCGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAG 143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGACCGCGCGCGTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgThrGlyAlaGluArgProGlyGlnValLeuAla 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnValSerGlnGlyIleHisAlaValTrpValAsnGlyArgGlnValTrpAspGlyGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspLeuValLeuPheAspProAlaAsnValThrAspThrAlaThrPheSerAlaProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrmetValArgGluGlnArgLeuLeuSerLeuGluThrAlaIleH1sLysMetThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspGlnAlaAspValAsnArgIlePheSerHisProLeuThrThrValGlySerAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ANATICCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGCCATCTACTTCATGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerLysGlyTyrProGluAlaThrGlyArgAspPheSerGluValMetAlaGluLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCAAGCCCTTCCCCGAACTGAGCGGGCGGGCCGACCTGGATGAAGTCGCGGCCGAGCGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrSerThrMetLeuArgLeuAspArgAlaArgLeuAlaSerArgThrLeuIleThrTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCTCCACCATGCTCAAGCAGGACCGCCGCGCGTGCTGCCTGGCCGGACGACCATCATCACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetileSerArgAlaAlaThrGlnArgValCysLeuAspCysH1sProTyrProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCTCGCACCACGAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCG
                                                                                                                                                                                                                                                    FROM N.A., AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         deacylase (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (N-acyl-D-glutamate
                  carboxylate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
```

```
Ş
                                    밁
                                                           Ş
                                                                                          밁
                                                                                                                   ş
                                                                                                                                                  밁
                                                                                                                                                                         Š
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-009-782-1 (1-1758) x NDED_ALCXX (1-488)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002195; Dihydrooratase. Pfam; PF00744; Dihydroorotase; 1. Hydrolase; Zinc.
                                                              649
                                                                                           181
                                                                                                                      589
                                                                                                                                                  161
                                                                                                                                                                            529
                                                                                                                                                                                                        141
                                                                                                                                                                                                                                   469
        709
                                    201
                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                         409
                                                                                                                                                                                                                                                                                                                      103
                                                                                                                                                                                                                                                                                                                                                                                                 292 CAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTG---GCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                       232 TOGGACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; D50061; BAA08778.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            112
                                                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                                                                           63 ThrHisGlyHisAspAspLeuMetPheValGluLysProGlyLeuGluTrpLysThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52 CAGCCCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COFACTOR: ZINC.
SUBCELLULAR LOCATION: Cytoplasmic.
SIMILARITY: BELONGS TO THE N-ACYL-D-AMINO-ACID DEACYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                          CACGCCAACCCGCCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAG
                                                                                  GlyPheSerThrGlyLeuAlaTyrGlnProGlyGlyValAlaGluGlnAlaGluLeuAsp
                                                                                                                                       AlaLysGluGlnArgAlaMetGluArgMetLeuAlaAspAlaLeuGluAlaGlyAlaVal
                                                                                                                                                                   GACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGCGCCATC
GECGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTG
                            GlyLeuAlaArgValAlaAlaArgGlyAlaLeuHisThrSerHisIleArgAsnGlu
                                                   GCCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCGCCACCACCGAAGAGATCATC
                                                                                                                                                                                           AspMetAlaMetTyrPheGlyAlaLeuGluAlaGlnArgProMetIleAsnValAlaAla
                                                                                                                                                                                                                                                                                    ProGlyAsnThrAlaAlaAlaLeuAlaLeuLeu-----GlyAspSerProLeuPheAla
                                                                                                                                                                                                                                                                                                                                                                      GlnGlyIleThrSerValValValGlyAsnCysGlyIleSerGlyAlaProAlaProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaProAlaAspArgArgLeuAspAlaGlyGlyArgIleValAlaProGlyPheIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgArgAlaAspValGlyIleArgGlyGluArgIleAlaAlaIleGlyAspLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGCGCCGACCTGGGCGTGCGCGCGCGCATCGCCCATCGGCGATCTGTCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluLysLeuAspLeuValIleGluGlyGlyTrpValIleAspGlyLeuGlyGlyProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.93e-35
1000.50
59.38%
46.46%
30.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51492 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F5A1B8315BEA167F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488
223
62
.190
                                                                                                                                                                      588
                                                                                                                                                                                                  160
                                                                                                                                                                                                                                                        140
                                                      708
                                                                                                                                         180
                                                                                  200
                                                                                                                                                                                                                             528
                                                                                                                                                                                                                                                                                    468
                                                                                                                                                                                                                                                                                                                                          408
                                                                                                                                                                                                                                                                                                                                                                        102
                                                                                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                                                                              82
                                                                                                                                                                                                                                                                                                                                                                                                                                                       291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     171
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                        YHL1_EBV
P03181;
21-JUL-1986
21-JUL-1986
                    SEQUENCE FROM N.A.

MEDLINE-84270667; PubMed-6087149;
Baer R., Bankler A.T., Biggin M.D., D.
Gibson T.J., Hatfull G., Hudson G.S.,
Tuffnell P.S., Barrell B.G.;
"DNA sequence and expression of the B:
Nature 310:207-211(1984).
                                                                                                                                                                                                                                                                                                                            1426
                                                                                                                                     Gammaherpesvirinae; Lymphocryptovirus.
                                                                                                                                               Hypothetical BHLF1 protein.
Epstein-barr virus (strain B95-8) (Human herpesvirus
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
                                                                                                                                                                                                                                                                                                                                                                                1366
                                                                                                                                                                                                                                                                                                                                                                                                                                  1306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1126
                                                                                                                          NCBI_TaxID=10377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1066 TACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATC
                                                                                                                                                                                             5-JUL-1998
                                                                                                                                                                                                                                                                                                   461
                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                           401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                     AspAlaProThrLeuAlaSerAlaGlyIleGluHisValLeuValAsnGlyCysAlaVal
                                                                                                                                                                                                                                                                                                                                                                          GAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                   GlyAlaTrpAlaAspValValValPheAspAlaAspThrValCysAspArgAlaThrTrp
                                                                                                                                                                                                                                                                                                                                                                                                                  GGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGGCACCTTCCCG
                                                                                                                                                                                                                                                                                              Phe---ProGlnAlaProProSerHisArgProGlyArgIleLeuArgArgAspAlaSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGGTGCTGGGGCACTATGCGCGCGGACACCTGGGCCTGTTCCCGCTGGAGACGCGGGTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysMetThrAlaLeuProAlaArgValPheGlyLeuAlaAspArgGlyArgLeuAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgValLeuGlyArgTyrValArgGluAlaGluLeuLeuThrLeuGluAlaAlaValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlySerAspGlyLeuProAsnAspAlaHisProHisProArgLeuTrpGlySerPheThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrPheAlaMetAspGluAsnGluValArgArgIlePheGlnH1sGluCysCysMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProTyrProGlySerSerThrIleLeuIleProGluArgAlaAspGlnIleAspAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrLeuAlaAsnIleAspArgAlaArgAlaAlaGlyValAspValAlaLeuAspIleTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgIleThrTrpSerThrProHisProGluCysGlyGlyGlnSerLeuAlaGluIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGCTGCCGCTGATCGAGGCCGCCATGGCGCGC---CAGGACGTCTCGCTGGACGCGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaThrValLeuSerHisHisLysCysMetMetProAlaAsnTrpGlyLysSerAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCGCTCGCGCGAG
                                                                                                                                                                                      (Rel. 01, Created)
(Rel. 01, Last sequence up
(Rel. 36, Last annotation
                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                     Last sequence update)
                                                       Deininger P.L., Farrell P.J., ., Satchwell S.C., Seguin C.,
                                  B95-8
                                                                                                                                                                                                                                             660
                                                                                                                                                                                         update
                                                                                                                                                                                                                                             ⋧
                              Epstein-Barr virus genome.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                               479
                                                                                                                                                                                                                                                                                                                                                                          1425
                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                             1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                                  460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
```

SWISS-PROT entry is

copyright.

Ħ

S

produced

through a

collaboration

686	627 CGCCACCGAAGAGAYCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGCATCTA	VΩ
626 <sub>.</sub> 271	67 AGCCATGGCCAGCGGCGCATCGGCATTTCGACCGGCGCCTTCTACCCGCCCG	₽.2
566 258	507 GGACTTGCAGCGCCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGA :::              250AlaGlyProProProThrArgSerGly	₽. &
506 249	447 GGCGGCCGTCAACGCCGCTGTATGGTGGGCCATTCAACGCTGCGCGCGC	₽ %
446 234	423 CCTGGACGCGTTGCGGGCCACGCC	op oy
422	363 CGCCCCCTGGACCTGCTGGACGAAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGACTA	8 5
362 195	303 CACGGTGGTCACGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACCCGCC	용정
302 185	243 CGACGACAACTACCTGCTCAGGCGTCGCGGACATGACGCCCAAGATCTCGCAGGGCGTCAC	8 <del>X</del>
242 170	183 CACCCGGGTCGACGTGTGGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCA	8 8
182	123 CCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCA	¥ ¥
122 152	69GCTCGCGGGCGCACCCTCATCGACGGCAGCACACACCCCGGGGCGGCGCGCCGA :::	υ ν Υ
6.8 132	39 CCAATCCGATTCCCAGCCTTCGACCTGCT	¥ ¥
	0-009-782-1 (1-1758) x YHL1_EBV (1-660)	JS-10
	Alignment Scores:  4.43e-07  Fred. No.:  321.50  Matches:  187  Conservative:  18  Best Local Similarity:  9.75%  Length:  Matches:  18  Conservative:  Mismatches:  256  Indels:  18  Gaps:  29	Alignmored. Iscore: Score: Sercen Sest La Duery I
	MBL: V0155; ; NOT_AN TIR; A03742; QQBE3. YDR: A03742; QQBE3. YDRAIN 149 648 EPBAN 149 273 EPBAN 149 273 EPBAN 399 523 EPBAN 399 523 EPBAN 524 648 EQUENCE 660 AA; 662	SHAHAGASK
station - is on its no way commercial announce/	he Swiss Institute of Bioinformatics and the EMBL out an Bioinformatics Institute. There are no restriction on profit institutions as long as its content is in this statement is not removed. Usage by and for cequires a license agreement (See http://www.isb-sib.ch/email to license@isb-sib.ch).	

602	roHisPro-GluArgGlySerGlyProAlaAspProProAlaAlaAla	밁
164	1584 TCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGC	Qy
583		<b>D</b>
158:	36 CCCCTCCCAACCCTGGACGCAAACCGCTACATGGCCCCTCCCTCCGC	Qy
563	546GlyGlyAlaGlyGlnArgProSerGlyProThrGlyGlyArgProAlaA	ઠ
153		Qy
545		F
147	CCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCG	Qγ
535	ArgThrTrpA	5
141	ACACCTACCGAGCGCGCCGCCGGCATTCCGTGTACGTCAACGG	Qy
515		В
136:		Ş
495	roArgLeuProGlnAspLeuAlaAlaAla	망
130		8
475	rgGlySerGlyProAlaAspProProAla	망
1,267		δ
455		₽
1220	1182 CCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCT:	Qy
435	416 GlnArgGlyH1sProProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyArg	ઠ
118;	CTGTGGGGCACCTT	δ
415		밁
1143	- വ	۵. پ
396	379 ProThrArgSerGlyAlaAlaAlaGlnArgThrHisArgArgProProGlyCys:	рь
108		δō
378	362 ArgLeuProGlnAspLeuAlaAlaAlaGlnArgCysProAlaGlyProPro :	В
102	CGAACTGAGCGGGCGACCTGGATGAAGTCGCGGCCGAGCGCGCAAATC	γo
361		뭥
962		νQ
341	oGlyProGlyGlyGlyAlaAlaValProSerGlyAlaThrProHisProGluArg	망
917	CGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA	Ϋ́
321	318GlyThrProAla :	뭥
857		Qγ
317	301 GlnArgProSerGlyProThrGlyGlyArgProAlaAlaProGlyAlaPro :	밁
797		ρ
300	286ArgArgSerGlyAlaGlnArgGlyHisProProGlyAlaGly	밁
737	ACGAAGGCGAGCACATCGTGGCCGCGCTGGAGG	<b>9</b> .
285	271 ysproArgSerAlaArg-AsnProGlyCysproArgThrTrpArg 2	D

1644 603 1695 623 623-7411 P0318 P0318 P0318 P0318 P0318 F0318 F03	B 2	B 5	B 8	g Q	US-1	Allgnme Pred. N Score: Percent Best Lo Query M DB:	SPTTTTT	88888888	CC RT T RA R R R R R R	8888	DE DA	Db RESULT	g . 54
	158  147 GlnTrpSerAlaArgAsnProGlyCysproArgThrTrpArgArgArgSerGlyAlaGln 166	657 GGGCCTTGCGCTCGGCGCGCGAGGCGCGCCCATCACTTCCCTTGCCCACGATATCGGGTG 159	717 TGGACAGGGTCGAGACCGCGATGCCGCTGCGCCTGCGACAGGTCTTGCAGGGTCATTTTCC 165	TCTCGTAGCTCAGGGCGATCTGGCCCAGCTCGGCCT	1 (1-1758) x YHL1_EBV (1-	Scores: 1.1e-06 Length: 312.00 Matches: 1.598 Conservative: 27.108 Mismatches: 9.628 Indels: Gaps:	9742; QUBES; -; NOT_ANNOTATED_CDS. 03742; QUBES; - etical protein; Early protein; Repeat. 149 648 4 X 125 AA TANDEM 149 273 1. 149 273 2. 274 398 2. 399 523 3. 524 648 4. 524 648 4. 526 660 AA; 66244 MW; 86DA1D67A37152A2	SWISS-PROT entry is copyright. It is produced through a collaborate en the Swiss Institute of Bloinformatics and the EMBL outstatio uropean Bloinformatics Institute. There are no restrictions on by non-profit institutions as long as its content is in no led and this statement is not removed. Usage by and for commerciate requires a license agreement (See http://www.isb-sib.ch/announ nd an email to license@iab-sib.ch).	PubMed=6087149; T., Biggin M.D., Deininger P.L., Farrell P.J., Il G., Hudson G.S., Satchwell S.C., Seguin C., rell B.G., Expression of the B95-8 Epstein-Barr virus genome.";	(strain B95-8) (Human herpesvirus 4 ses, no RNA stage; Herpesviridae; Lymphocryptovirus.	YHIL_EBY STANDARD; PRT; 660 AA. P03181; P03181; 21-JUL-1986 (Rel. 01, Created) 21-JUL-1986 (Rel. 01, Last sequence update) 15-JUL-1998 (Rel. 35, Last annotation update Hypothetical BHLF1 protein.	695CATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA	CGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGG

<b> </b>	::::::   AlaAlaAlaGlnArg	睩 .	
7	35 GCAGCGTCTCGCGAGCGGCCGAAATTGGGCTGGCCCATGACCTTGTGTGTG	Qy	
	 	g	
836	TGGCGCG	Qy	
7	roSerGlyAlaThrProHisProGluArgGlySerGlyProAlaAsp	D	
869	GTAGGGATACGCGTCCAGCGA	Qy	
452	440 GlyAlaProGlyThrProAlaAlaProGlyProGlyGly 4	탕	
914	GCTTGCACCAGGTGATGATGGTGCGTCCGGCCAGCAGCACGCGGTCCTGCT	Qy	
439	420 ProProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyArgProAlaAlaPro 4	Дb	
971		Qy	
419	400 AlaArgAsnProGlyCysProArgThrTrpArgArgArgSerGlyAlaGlnArgGlyHis 4	밁	
1031		Ωу	
399	383 GlyAlaAlaGlnArgThrHisArgArgProProGlyCysProArgSer :	밁	
1088		VΩ	
382	.363 LeuProGlnAspLeuAlaAlaGlnArgCysProAlaGlyProProProThrArgSer :	망	
1148	CAGGCGCGGATGCGGGCGCTCGT	Qy	
362	343 SerGlyProAlaAspProProAlaAlaAlaArgLeuProProGluArgGlnGluProArg	망	
1193	CAGGCCCAGGTCGCGCGCATAGTGCCCCA	Qy	
342	323 ProGlyProGlyGlyAlaAlaValProSerGlyAlaThrProHisProGluArgGly	망	
1223	ATCTTCCATACCGCCGTCTCCAGCGGGA	Qy	
322	 GlyAlaProGlyThrProAlaAla	뫄	
1283	CAGGTCGGCGAAGTACCCGGCCTGCAGCT	Qy	
302	SerGlyAlaGlnArgGlyHisProProProGlyAlaGlyGlnArg	Б	
1328	GCGGTATCGG	ργ	
282	   lyCysProArg	밁	
1364	GTTCGA	Qγ	
262	SerGlyAlaAlaAlaGln	뭥	
1418		Qy	
242	ArgLeuProGlnAspLeu	밁	
1457		Qy	
222		뮍	
1481	CACGCCGGATTGTAAGGGCTGGCGCCCGGGCTCAGGCGG	Qy	
206	aProGlyAlaProGlyThrProAlaAlaProGlyProGlyGlyGlyAlaAlaVal	망	
Ċ.	CCAGGGTTGGGAGGGGGC	Qy	
186	gPro	당	
1559	AGGGAGGGCCATGTAGCGGT	Qγ	

```
RRAPARA RANKER R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMYH_YEAST
                                                                                                                                                                                                                                                                                                                           P08640; P08068;
01-AUG-1988 (Rel. 08, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Glucoamylase S1/S2 precursor (EC 3.2.1.3) (Glucan glucosidase) (1,4 alpha-D-glucan glucohydrolase).
STA1 OR STA2 OR MAL5 OR YIR019C.
STRAIN-S288C / AB972;
Barrell B.G., Badcock K., Bankler A.T., Bowman S., Brown D.,
Churcher C.M., Connor R., Copsey T., Dear S., Devlin K., Fraser
Gentles S., Hamlyn N., Horsnell T.S., Hunt S., Jagels K., Jones
Louis E., Lye G., Moule S., Moule T., Odell C., Pearson D.,
Rajandream M.A., Riles L., Rowley N., Skelton J., Smith V.,
Walsh S.V., Whitehead S.;
Submitted (DEC-1994) to the EMBL/GenBank/DDBJ databases.
[2]
                                                                                                                                                                                                                                            Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales; Saccharomycetaceae; Saccharomyces. NCBI_TaxID-4932;
                                                                                                                                                                                                                                                                                                               Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                       SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMYH_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProGlyProGlyGlyGlyAlaAlaValProSerGlyAlaThrProHisProGluArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGlyCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGATGTGCTCGCCTTCGTCGCGCATGTGGGGTGGCGTAGATGCCGCCATGCGCGCTCAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgArgProProGlyCysProArgSerAlaArgAsnProGlyCys--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGCGACCACCAGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTGGGTGTGCGAGTCGATGAAGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGGCTGATGCCGCAATTGCCCGTGACCCACCGTGGTGACGCCCTGCGAGATCTTGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluArgGlnGluProArgLeuProGlnAspLeuAlaAlaAlaGlnArgCysProAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCGCCTTCGTCCAGCAGGTCCAGGGGGGG----CGGGCGGGTTGGCGTGCGCCAGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerGlyProAlaAspProProAla---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCCGCCGCGTGGCCCCAACGCGTCCAGGTAGTCGGCGAAGCGCTCGAAACGGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATGGCCCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   o-----ThrGlyGly--ArgProAlaAlaProGlyAlaProGlyThrProAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGTCGAAATGCCGATGGCGCCGCTGGCCATGGCTTCCTCGGCCAGGTCCCGCATGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgSerAlaArg--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProProThrArgSerGlyAlaAlaAlaGlnArgThrHisArgArgProProGlyCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCACCGGCACGT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAGATCGCCGATGGCGG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GlyHisProProProGlyAla---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ProArgThrTrpArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -------ArgThrTrpArg---ArgArgSerGlyAlaGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CCAGCTCGCGGCCGATGCGGAAGGTTTCCTCCAGCGCGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ThrargSerGlyAlaAlaAlaGlnargThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CCGACACGTCGACCCGGGTGTGCGCGCGCGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GlyGlnArgProSerGlyPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -AlaAlaArgLeuProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CCATACAGGCGGCGTTGA
                                                                                                                                                                                                                                                                                                                                                                                1,4-alpha-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278
                                                                                                                                                                                                Š
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                    20
                                                                   밁
                                                                                                        ρy
                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
::
                                                                                                                                                                                                                                                 365
                                                                                                                                                                                                                                                                                                                                                                                œ
```

```
Query Match:
                                                                                                                                                                                                                                                                                                                 US-10-009-782-1 (1-1758) x AMYH_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from Saccharomyces cerevisiae.";
FEBS Lett. 239:179-184(1988).
-!- CATALYTIC ACTIVITY: Hydrolysis of terminal 1,4-linked alpha-D-
glucose residues successively from non-reducing ends of the chains
with release of beta-D-glucose.
-!- SIMILARITY: TO S. POMBE SPECIS.13.
-!- SIMILARITY: SOME, TO S. POMBE SPECIS.13C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-89031230; PubMed-3141213;
Pardo J.M., Ianez E., Zalacain M.
"Similar short elements in the 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 1-242 AND 762-1331 FR MEDLINE-87194600; PubMed-3106330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yamashita I.,
                                                                                                                                                                                                                                            Bacteriol. 169:2142-2149(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B26877; B26877.
A26877; A26877.
S48478; S48478.
                                                                   GGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACA------
                                                                                                        ValThrSerSerThrThrGluSerSerSerAla--
                                                                                                                                                                           GluSerSerAlaProValThrSerSerThrThrGluSerSerAlaPro-----
                                    SerSerSerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S0001458; MUC1
                                                                                                                                           GCGTGCGCGGCGACCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCC
                                                                                                                                                                                                                                                                                  ACTTGATCGCGGAAGGAGAGTTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGC
                                                                                                                                                                                                                                                                                                                                                                                       Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Z38061; CAA86176.1; -. M16164; AAA35014.1; -. M16165; AAA35015.1; -. X13857; CAA32069.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Multigene
-CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is a possible mechanism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ycosidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
1367
1367
817
874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     family.
                                                                                                                                                                                                                                                                                                                                                                  4.6e-06
296.50
38.72%
25.50%
8.99%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Polysaccharide degradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
GLUCOAMYLASE S1/S2.
SER/THR-RICH.
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . . .)
NW; 91C00E2DBD61AA9D C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  agreement (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM
                                                                                                                                                                                                                                                                                                               (1-1367)
                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regions of the STA2 ar
                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        underlying the evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Usage by
                                                                                                                                                                                                                                                                                                                                                    1367
139
72
266
68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                        ProvalProThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genes
 292
                                    418
                                                                                                        398
                                                                                                                                           187
                                                                                                                                                                           382
                                                                                                                                                                                                                                                 364
                                                                       238
                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 휴
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                      977
                                                                                                                                                                                                                                                                                                                                                                                                      621
                                                                                                                                                                                                                                                                                                                                                                                                                                     941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     457
                               GCTTCGGCCTGGCCGGGCAGCTAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGT
ProSerSerShrThrGluSerSerSlaProValThrSerSerThrThrGluSer
                                                             aProValProThrProSerSerSerThrThrGluSerSerSerAlaPro--ValProThr
                                                                                             ACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGC
                                                                                                                           AGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGGACTATGCGCGCG
                                                                                                                                                                                            {\tt AlaProValThrSerSerThrThrGluSerSerSerAlaProValThrSerSerThrThr}
                                                                                                                                                                                                                            GCATCCTGGCGTTCGGCC-----CGACCATGATCGGCTCCGACGGCCTGCCGCACGACG
                                                                                                                                                                                                                                                                                        TGCCCGAGCTGCAGCCGGCGCGCGCATCTACTTCATGATGGACGAACCCGACGTGCAGC
                                                                                                                                                                                                                                                          {\tt ThrGluSerSerAlaProValProThrProSerSerSerThrThrGluSerSerSer}
                                                                                                                                                                                                                                                                                                                         ProSerSerShrThrGluSerSerSerAlaProValProThrProSerSerShr
                                                                                                                                                                                                                                                                                                                                                TGAGCGGGGCGACCTGGATGAAGTCGCGGCCGAGCGGGCAAATCCAAGTACGACGTGG
                                                                                                                                                                                                                                                                                                                                                                                        Ser Ser \texttt{AlaProValThr} Ser Ser \texttt{ThrThrGluSerSerAlaProValProThr}
                                                                                                                                                                                                                                                                                                                                                                                                                                GCACCATCATCACCT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluSerSerSerAlaProAlaProThrProSerSerSerThrThr------Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     {\tt SerSerThrThrGluSerSerSerAlaProValProThrProSerSerThrThr}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCGCGAGACGCTGCCGGTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ser Ser Thr ProValThr Ser Ser Thr Thr Glu Ser Ser Ala ProVal ProThr Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  {\tt SerThrThrGluSerSerSerAlaProValProThrProSerSerSerThrThrGluSer}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGACGAAGGCGAGCATCGTGGCCGCGCGCGGAGGAAACCTTCCGCATCGGCCGCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---ProserSerSerThrThrGluSerSerSerAlaProAlaProThrProSerSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         {\tt SerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSerSerSerAla}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       {\tt AlaProValThrSerSerThrThrGluSerSerSerAlaProValProThrProSerSer}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValProThr --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerThrThrGluSerSerSerAlaProYalThrSerSerThrThrGluSerSerSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProValProThrPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerAlaProValThrSerSerThrThrGluSerSerSerAla-----ProValThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGTCAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ···-SerSerSerThrThrGluSerSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                          ------GTTGCAAGCCCTTCCCCGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -SerSerSerAlaProValThrSer
                                                                                               1270
                                                                                                                                                                                                                            1150
                                                                                                                                                                                                                                                                                           1096
                                                                                                                                                                                                                                                           680
                                                                                                                                                                                                                                                                                                                                                         1036
                                                                                                                                                                                                                                                                                                                                                                                        640
                                                                                                                                                                                                                                                                                                                                                                                                                                                        620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   436
```

Ş 밁 Ş 밁 Ş

밁 Š 문 S 밁 Ş 뭐 Ş 밁 Ş

S

```
RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                         use by non-profit institute. There are no rest
modified and this statement is not removed. Usage by an
entities requires a license arrows.
                                                               entities requires a license agreement or send an email to license@isb-sib.ch
                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.

STRAIN-CDC 1551 / Oshkosh;
FleisChmann R.D., Alland D., Eisen J.A., Carpenter L., White O.,
Peterson J., DeBoy R., Dodson R., Gwinn M.L., Haft D., Hickey E.,
Kolonay J.F., Nelson W.C., Umayam L.A., Ermolaeva M.D., Salzberg
Delcher A., Utterback T., Weldman J., Khouri H., Gill J., Mikula
                                                                                                                                                                                                                                                                                                                                                                                         Cole S.T., Brosch R., Parkhill J., Garnier T., Churcher C., H Gordon S.V., Eiglmeier K., Gas S., Barry C.E. III, Tekkia F., Badcock K., Basham D., Brown D., Chillingworth T., Connor R., Davies R., Devlin K., Feltwell T., Gentles S., Hamlin N., Holl Hornsby T., Jagels K., Krogh A., McLean J., Moule S., Murphy Oliver S., Osborne J., Quall M.A., Rajandream M.A., Rogers J. Rutter S., Seeger K., Skelton S., Squares S., Squares S., Sulston J.E., Taylor K., Whitehead S., Barrell B.G.; "Deciphering the biology of Mycobacterium tuberculosis from t Nature 393:537-544(1998)."
                             EMBL; 274024; CAA98380.1;
                                                                                                                                                                                 laboratory strains.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
-!- SIMILARITY: BELONGS TO THE N-ACYL-D-AMINO-ACID DEACYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q10830;
01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=98295987; PubMed=9634230;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Actinobacteria; Actinobact Actinomycetales; Corynebacterineae; NCBI_TaxID-1773;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Hypothetical protein Rv2913c.
RV2913C OR MT2981 OR MTCY274.45C OR MTCY338.01C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mycobacterium tuberculosis
                                                                                                                                                                                                                                           Whole genome comparison of Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XII3_MXCIU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            779
                                                                                                                     ween the Swiss Institute of Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGCGTGAACGGGGGGGGGGGGGGCGCCCCCCCCCAACCCTGGACGCAAACCGCTACATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IleThrSerSerAlaProSerSerThrProPheSerSerSerThrGluSerSerSerVal 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerSerThrThrGluSerSerValAlaProValProThrProSerSerSerSer---Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCATCCATTCCGTGTACGTCAACGGCGCGCGCGGTCTGGCAAGAGCAGGCGTTCACCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCATGCCGGCCGCGTGCTCGCACGCACGCCCGCCCTGAGCCCCGGCGCCCAGCCCTTACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValProThrProSerSerSerThrThrGluSerSerSerAlaProValProThrProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerSerAlapro---ValproThrProSerSerSerThrThrGluSerSerSerAlapro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCG
                                                        an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Actinobacteria (class); Actinobacteridae;
cterineae; Mycobacteriaceae; Mycobacterium.
                                                               http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                    restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N., Holroyd
                                                                                                                                                                                                                                           clinical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Harris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ŀ.,
                                                                                                                                                                                                                                                                         A.L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  פ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1390
```

GG 8 As 2 CT 8 Le 2	756 CGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAC ::::::               260 -AspValAspAsnProValSerAlaLeuLeuPhePheLeuAlaSerSer 816 CCGCTCGCGC	0 4 6 4 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6
0 - 43 - 12	225 ArgPheArgSerArgAlaLeuProSerThrPheAlaThrTrpArgGl 696 CATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCT	2. B Q B
0 N 0	595 TCGACCGGCGCCTTCTACCCGCCGCGCGCCGCGCGCACCACCAAA	δ
	:::	Db Db
		04 B 04 B
	292 CAGGGCGTCACCACGGTGGTCAC	Qy Dy Qy
	172 GCCG 56 ThrG 232 TCGC	0 y 0 y
	S-10-009-782-1 (1-1758) x YT13_MYCTU (1-611)  Y 58 TTCGACCTGCTGCTGCGGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGGGGG	OY OY OY
	ignment Scores:     6.28e-06     Length:     611       ode:     294.00     Matches:     153       ore:     36.48%     Conservative:     79       orent Similarity:     24.06%     Mismatches:     216       st Local Similarity:     24.06%     Mismatches:     216       ery Match:     8.91%     Indels:     190       ery Match:     1.90     Gaps:     25	Al Pro Sco Pel Bei DB
	R TubercuList; Rv2913c; W Hypothetical protein; Hydrolase; Complete proteome. C SEQUENCE 611 AA; 67205 MW; C3AA4A13B06BC34A CRC64;	SQ

	LT 8 _HUMAN MUC2_HUMAN STANDARD; PRT; 5179 AA. Q02817; Q14878;	.29	MUC ID AC	
		598	g	
	GAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCG 1530	1487	Qy	
597	heArgAspGlyTyrGlyGlnAsnValLysSerGlyArgTyr	584	닭	
148	CATGCCGGCCGCTGCTCGCACGCACGCCCGCCT	1453	γQ	
584	alValAlaThrGlyValGlyGlyThrValValPheArgGlyGlyGlnPheGlyGlyGlnF	. 564	밁	
145	CCATTCCGTGTACGTCAACGCCGCGCCGGTCTGGCAAGAGCAGGCGTTC	1394	Q	
564	luGluAlaValProTyrTyrGlyGlyLeuArgArgMetValAsnArgAsnAspAlaThrV	544	밁	
139	CTACCGAGCGCCGCCGCA	1373	Qy	
544	rgAlaAspPheAlaValIleAspProThrHisLeuAspGluSerValAspGlyTyrHisG	524	뫄	
137	TCGCCGACCTGGTGTTCGACCCGGCCACGGTGGC	1313	Qγ	
524	hrGlyGluLeuAlaGluTrpPheGlyIleGlyAlaGlyThrLeuArgGlnGlyAspA	505	g	
131	CCGGCCTGACCGCCGCGCTTCGGCCTGGCCGGGCAGCTGCAGGCCGGGTAG	1253	δδ	
505	rgAspAlaAspArgAlaGlyGlnProPheLeuSerIleGluArgAlaValTyrArgLeuT	485	뮍	
125		1225	29	
485		465	멼	
122	GGCACTATGCGCGCGACC	1196	Qy	
465	OAsnGlnLeuAsnLysLeuAlaAlaGluProSerValHisMetGlyPhe	445	뮍	
119	TGCCGCACGACGAGCGCCCCGCATCCGCGCCTGTGGGGGCACCT	1139	Qγ	
445	_	429	D	
113	ACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCC	1079	γQ	
429		416	밁	
107	GTACGACG	1026	Qy	
415		398	8	
102	CTTCCCCG	966	Qy	
398		379	말	
965		946	Qy	
379	nGluLeuLeuA	359	밁	
945	CGTGCTGCTGGCCGGACGCAC	924	Qy	
359	IPheGluGluPheGlyAlaGlyThrAlaAlaLeuHisLeuArgAspGlnLeuGlnArgAs	339	밁	
923	:	886	ν	
339		319	Д	
885		849	Qγ	
319	   WAlaValHisValPheGlyLeuGlyThrArgValLeuAsnLysLeuLeuGlySerGlnVa	299	밁	
848	GATCGA	840	γQ	

```
EMBL; M74027; AAA59875.

EMBL; M94131; AAA59163.1

EMBL; M94132; AAA59164.1

Genew; HGNC:7512; MUC2.

MIM; 158370;
                             InterPro; IPRO00359;
InterPro; IPRO024061;
InterPro; IPRO02409;
InterPro; IPRO02919;
InterPro; IPRO01007;
InterPro; IPRO01846;
                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial or send an email to license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                          +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 1343-1895 AND 4176-4195 FROM N.A. MEDLINE-91358717; PubMed-1885763; Toribara N.W., Gum J.R. Jr., Culhane P.J., Lagace R.E., Hicks J.W., Petersen G.M., Kim Y.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=93016075; PubMed=1400449;
Gum J.R. Jr., Hicks J.W., Toribara N.W., Rothe E.-M., Lagace R.E.,
Kim Y.S.;
"The human MUC2 intestinal mucin has cysteine-rich subdomains loca
both upstream and downstream of its central repetitive region.";
J. Biol. Chem. 267:21375-21383719921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-Intestine;

MEDLINE-94132002; PubMed-8300571;

Gum J. R. Jr., Hicks J.W., Toribara N.W.,

"Molecular cloning of human intestinal mu
Identification of the amino terminus and
to prepro-von Willebrand factor.;

J., Biol. Chem. 269:2440-2446(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mucin 2 precursor (Intestinal mucin 2).
MUC2 OR SMUC.
HOmo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MUC-2 human small intestinal mucin gene structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 626-1895 AND 4196-5179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUN-1994
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1997 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polymorphism. ",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               an MUC2 intestinal mucin has cysteine-rich subdomains located tream and downstream of its central repetitive region."; Chem. 267:21375-21383(1992).
                                      GF_cysknot.
GF_cysknot.
TIL_Cysrich.
VWF_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29, Created)
35, Last sequence 41, Last annomalian (Intestinal)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ., Siddiki B., Kim Y.S.;
mucin (MUC2) cDNA.
nd overall sequence simi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Repeated arrays
   CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                            CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                             CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                              CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                           DISULFID
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMART; SM00214; VWC; 2.
SMART; SM00215; VWD; 4.
PROSITE; PS00022; EGC_1; UN
PROSITE; PS01185; CTCK_1; 1
PROSITE; PS01125; CTCK_2; 1
PROSITE; PS01208; VWFC; 2.
                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                 REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS;
894
11394
1215
1215
1220
1230
1246
1246
1329
4339
4351
4436
4373
4422
4438
4527
4616
4616
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
47627
                                                                                                                                                                                                                                                                                                                                                                                                            1716
1732
4815
4924
5075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1573
1573
1597
1613
1636
1652
1676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Repeat;
1572
1596
1612
1635
1635
1651
1675
1683
1683
1699
1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GFCYSKNOT
                                                                                                                                                                                                                                                                                                     423
670
770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UNKNOWN_1.
                  N-LINKED
N-LINKED
                                                   N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                   N-LINKED
N-LINKED
                                                                                                                                                                    N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                        15.
16.
VWFC
VWFC
CTCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPROXIMATE REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MUCIN 2.
    (GLCNAC
                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                           (GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                          (GLCNAC
(GLCNAC
                                                                                                                                                                                                                                                               (GLCNAC
                                                                                                                                                                                                                                                                                                 (GLCNAC
                       (POTENTIAL)
  (POTENTIAL)
                                                                                                                                                                                                                         (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                       (POTENTIAL)
(POTENTIAL)
                                                                                                                                                                                      (POTENTIAL)
                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                               POTENTIAL
```

	1548		
•	4 1	1544	D D
	<u>.</u>	782 CGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTTCGCCTTC	γo
	1543	b 1533 ProproProThrThrProSerProProThr	В
	781	y 722 TGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCT	δ
	1532	1524SerProProT	D D
	721	662 CGCTGAGCGCGCATGGCGGCATCTACGCCACCCACATGCGGGAACGAAGGCGAGCACATC	γQ
	1523	1512 AlaSerThrThrThrLeuProp	, 5
	199	602 GCGCCTTCTACCC	, Q
	1511	1501 SerProProMetThrThrProIleThrP	<b>B</b>
ŧ	601	NY 542 CGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCG	γo
	1500	1490ThrThrThrThrProProProThr	дa
	4	482 CAACGCTGCGCGCGCGCTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAAT	δō
	481	Db 1474 ThrThrProSerProProThrThrProSerProProThrThr	B 4
	1473	1464 ProProProThrThrThrProSer	, c
	421	362 CCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTT	; io
	14	1456 ProProIleSerThr	ם י
	361	ດ.	o
•	نو	Db 1449 LeuProThrThrThrProSer	9
	301	TACCTGCTCAGGCGTCGCGACATGACGC	o
	1448	rThrThrPro	<b>D</b>
•		3	o
	181	1419 ThrThrThrProSerProProTh	<b>17</b>
٠			0
	3 121 1 1 1418	WY 04 ACCIGUIGUIGUIGUIGUIGUIGUIGUIGUIGUIGUIGUIGUI	
	0 1402	PATRICIAN CONTRACTOR C	<b>-</b>
	61	<b>ゴ・;</b>	
		-10-009-782-1 (1	_
·		289.50 Matches: 146 at Similarity: 32.92% Conservative: 41 Local Similarity: 25.70% Mismatches: 164 Match: 8.78% Indels: 217 Gaps: 29	
,		1e-06 Length: \$170	
•		FT CONFLICT 1504 1504 M -> F (IN REF. 3).  FT CONFLICT 4192 4192 G -> S (IN REF. 2).  SO SEQUENCE 5179 AA; 540295 MW; 85CD7571FB9A5663 CRC64;	
		1351 1351 H -> L (IN REF. 3) 1412 1412 T -> S (IN REF. 3) 1449 1449 T -> B (IN REF. 3)	

09   842 TCGAGGCCGCCANGGCGCAGGACGCTGCCGCTGCACCGCTTTTCCCTACCTGGCCG 898   Db   1549														•						0						-					
842 TGGAGGCGCCAAGGACGCCCAAGGACGTCTCGCCTAGACGCGTATCCCT ACCTGGCCG	. 99	Ď	· Qγ	B	Qy	Ф	· ΟΥ	Db.	Qy	DЬ	δ	Db	Qγ	Дb	Qy	D.	Qγ	рь	Q	D D	οy	В	Qy	В	Q.	밁	oy Oy	В	Θ	멍	ρy
	UA_PRVKA VNUA_PRVKA VNUA_PRVKA STANDARD; PRT; 1733 p33405; 01-FEB-1994 (Rel. 28, Created) 01-FEB-1994 (Rel. 28, Last sequence updat 01-FEB-1994 (Rel. 28, Last annotation upd Probable nuclear antigen. Pseudorables virus (strain Kaplan) (PRV). Viruses; dsDNA viruses, no RNA stage; Her Alphaherpesvirinae; Varicellovirus. (1)	1764 SerileThrProProThrPheSer	1586 GCAATACGGCCCCACCCGATATCG	1745 ThrThrLeuProProThrThrThrSerSerProLeuThrThrThrProLeuProPro 17	1526 CGGCGTGCCGCCCCCCCAACCCTGGACGCAAACCGCTACATGGCCCCCTCCCT	1728 MetThrThrProSerProThrThrThrProSerProProThrThrThrMet 17	1466 TGCTCGCACGCACGGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGG 15	1710 ThrThrThrThrProSerSerThrThrThrProSerProProPhrThr 17	1406 ACGTCAACGGCCCCGGTCTGGCAAGAGCAGCGTTCACCGGCCAGCATGCCGGCCG	1691 ProProThrThrMetThrThrProSerProThrThrThrProSerSerProIle 170	1388	1671 ThrThrThrProProProThrThrProSerSerProIleThrThrThrProSer 169	1355CCGCCACCTTCGAACACCCTACCGAGCGCGCCC	1652ProProThrThrThrProSerProProThrThrThrProSerProProIleThr	1298 TGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATA	1641ProSerProProProThrThrThrThrPro 165	1238 CGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCGCTTCGGCCTGGCCGGGCGCGCGC	1634	1178 CCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGG 123	1625 ProlleThrProProThrSerThrThr	1118 CCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCGCCCGCATCCGCGCTGTGGGGCA	1605 ProThrThrThrThrThrProProProThrThrThrProSerProProThrThrThr	1064 TCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCTGCATCCTTCCCCCC		1019 AATCCAAGTACGACGTGGTGCTGACCTTGTACTACTACTCCCCCCCCCC	1576 Thrihreroserpro	959 GCAAGCCCTTCCCCGAACTGAGCGGGCCCGACCTGGATGAAGTGGAGGGGGGGG	1563 SerProProProThrThrThrThrThrThrThrThrThrThrThrThrThrT	899 GCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGCTGCACCACCAACCA	1549ProProThrSerThrThrThrLeuProProTroThrThrThrThrThrThrThrThrThrThrThrThrThrT	842 TCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGCCCC 90

```
밁
                                                                                                                           Ş
                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                . 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-009-782-1 (1-1758) x VNUA_PRVKA (1-1733)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way endified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
945 GlyArgAlaAlaLeuLeuAlaProLeuGlyArgTrpValArgAlaGlyGlyGlyGly 964
                                                                                        925
                                                                                                                            369
                                                                                                                                              905 AlaAlaLeuAlaProGlyProProValLeuPheValValAlaValAlaValAlaValPro 924
                                                                                                                                                                                                                                        885
                                                                                                                                                                                                                                                                                                             865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.

MEDLINE-91021039; PubMed-2171211;

VICEk C., Kozmik Z., Paces V., Schirm S., Schwyzer M.;

"Pseudorables virus immediate-early gene overlaps with an oppositely oriented open reading frame: characterization of their promoter and
                                                     387 AGGCGG-----
                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                           336
                                                                                                                                                                                                                                                                                                                                                                   847 GlyGlyProArgArg-----ValGlyLeuAlaGlyArgAspAlaAlaGluAlaAlaVal 864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             294
                                                                                                                                                                                                                                                                                                                                                                                                        234 GCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCA 293
                                                                                                                                                                                                                                                                                                                                                                                                                                          832 GlyAlaGlyHisLeuGlyArgAlaValGlyGlyGluGly------ArgLeu 846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 812 GlyargvalGluGlyGluArgArgAlaProGluPheGlyGluAspLeuLeuValHisGlu 831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    156 CGGCGATCTGTCGGACGCCGCGCGCA----- 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       792 HisprociyGlyAlaAlaAlaGluArgGlyAlaAlaAlaArgGlyAspValArgGlnGly 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           102 CACCCCGGG-----GCGGCGCGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCCAT 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M34651;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       enhancer regions.";
Virology 179:365-377(1990).
                                                                       AlaGluGlyArgAlaGlyGluProLeuValLeuLeuAlaValProGlyAlaAlaGlyPro 944
                                                                                                                                                                                                                     GlyGlyGlyGlyGlnGlnArgGlySerGlyValArgSerGlyProGluSerGluGly 904
                                                                                                                                                                                                                                                                                            GlyArgGlyValLeuGlyHisGlyProGluArgAlaProGluProValValLeuGlyGly 884
                                                                                                                                                                                                                                                                                                                                  GGGCGTCACCACGGTGGTCACGGGCAATTGCGG----CATCAGCCT------
                                                                                                                                                                                                                                                                   GGCGCCGCTGGCGCCAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAA47471.1; -
                                                                                                                                                                                  -cccecccccc.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ą,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         117
1733
196
298
308
889
1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.43e-05
284.50
26.26%
23.85%
8.62%
                                    ---CTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTT 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            172166 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLY-THR.
GLY-RICH.
POLY-SER.
POLY-PRO.
POLY-ARG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POLY-GLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0C8CD8BE475BB5E2 CRC64;
                                                                                                             -- CCTGGACCTGCTGGACGA 386
```

	AGTGAT 1625	1578 CTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGA	Ϋ́
	CCGCTACATGGCCCCTCC 1577                       ProArgGlyGlyProSer 1647	628 ProArgProArgArgArgProGlyLeuThrAspArgValPro	
	cpArgArgGly 1627	ArgCysGlyH18ArgCysT	3 8
	1541	530 GTGCCGCCC	
	,	:::      S88 GlyGlyAlaAlaAlaAlaGlyArgArgAspArgP	b
	3 7		δ
	1511 1ProSerGlvGlv 1587	68 LeuValGluGlnGlyLeuAlaValLeuValMetValThrThrAlaVa	
	•	SAUCHTER STATE OF THE STATE OF	Ş
		1437	Db Qy
	16	9 AlaGlyAspG	
		1436	Qy
	lyAla	1509 LeuArgGlyArgProAlaValProGlyGluAlaGluSerValLeuValLeuLeuG	뮹
	14		Qy
	lyLeuSer 150	1489 AlaGluAlaAlaAlaAlaGluGlyAlaLeuSerGlyAlaAlaProAlaG	Db .
		1428 GCAAGAGCA	γ
	  aalaGlyala		문
•	GCGCCGGTCTG	1368 ACACCCTACCGAGCGCGCCGCCGCATCCATTCCGTGTACGTCAACGGC	Qγ
		1459 ArgAlaProArgGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyArg	ğ
	136	1317CGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACC	γQ
	lvGlvGlv	GlyGlyArgGly	Ф
		cec	Qy
	SerLeu 1	3lyGluTrpGlyAlaGlyProAspSerPhe	₽
		1272 CTTCGGCCTGGCCGG	Qy
	<u>ب ب</u>	1404 GlyGlyArgGlyProArgGlyArgGlyArgArg	문
		1212 CCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCCGCGC	ν. V.
	SlyGlyGlyGly 1403	lyArgGlyGlyArqGly	В
		GCACT	γQ
		6GlyProValGlyHisGluArgGluVa	문
		GCAC	VΩ
	CGACGAGCGCCC 1157         argarg 1365	1350 GlyProGlyLeuProGluArgGlyGluGlnArgProValGlyArgArg	용
		8	VQ VQ
		1038 GCCCGAGCTGCAGCCGGCCGGCCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCG	β Q
	GlyAlaAlaVal 1338		Db

```
밁
                                         Š
                                                                          밁
                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                            묽
                                                                                                                                                                          δã
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                     US-10-009-782-1 (1-1758) x YGY3_HALSQ (1-437)
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YGY3_HALSQ
P21561;
01-MAY-1991
01-MAY-1991
16-OCT-2001
192 CGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTC---GCACACCCACGACGA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; M38373; -; NOT_ANNOTATED_CDS.
PIR; C39135; C39135.
Hypothetical protein.
SEQUENCE 437 AA; 50626 MW; B5B9
                                                                          102
                                                                                                 147 CGCCGCCAT-----CGGCGATCTGTCGGACGCCGCCGCGCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. The European Bioinformatics Institute. use by non-profit institutions as limodified and this statement is not rementities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1682 --CGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCG 1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or send an email to license@isb-sib.ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phis SWISS-PROT entry is copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haloferax sp. (strain Aa 2.2).
Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
Halobacteriaceae; Haloferax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HALSO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1687 lyArgArgProGlyProGly---AlaGlyProGlyProGlyPro 1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1648 ProArgGlyCysArgGlyAlaGlyArgAlaGlyGlyGlyGlyArgGlyGlyCysGlyGly 1667
                                                                                                                                                                93 CGGCAGCAACACCCCGGGGGGGGGGGCGCGACCTGGGGGGTGCGGGG-----CGACCGCAT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mutations in DNA gyrase result in novoblocin resistance alophilic archaebacteria.";
                                                                                                                                       89 Arg-----
                                                                                                                                                                                                                                  33 CATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCGA
                                                                                                                                                                                                                                                                 59 ValProGlnLeuArgGly---ArgAspPheAlaLeuArgArgAlaAspArgArgValGlu 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               iolmes M.L., Dyall-Smith M.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EDLINE-91100352; PubMed-1846146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Typothetical 50.6
                                                                                                                                                                                                           78 HisValProLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CBI_TaxID-2254;
                                                                                                                                                                                                                                                                                                     3 ATTCCACTTGATCGCGGAAGGAGAGATTTC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteriol. 173:642-648(1991).
                                                              ArgArgHisLeuLeuArgArgArgValGlyGlyHisArgGlyArgAsnArgHisAlaGly 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 protein.
437 AA; 50626 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Rel. 18, Created)
(Rel. 18, Last sequence update)
(Rel. 40, Last annotation update)
(Rel. 40, Last annotation update)
(Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                     1.96e-05
282.50
33.87%
29.61%
8.56%
                                                                                                                                -----ArgValProGlnArgAspGlnAspGlyAlaProArg 101
                                                                                                                                                                                                  -----ArgGlyArgHisProArgVal 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B5B99A2AF3892BEF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            as long
                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 It is produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          437 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       There are no rest
                                                                                                                                                                                                                                                                                                                                                                        437
146
21
161
165
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and the
                                                                                                 ----CACCCGGGT 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a collaboration
 140
                                                                                                                                                                                                                                  92
```

```
닭
                                                                                          Ş
                                    S
                                                                                                                        밁
                                                                                                                                                δÃ
                                                                                                                                                                                  밁
                                                                                                                                                                                                           S
                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                             1149
                                                                                                                                                     1089
                                                                                                                                                                                                              1029
          392
                                                                                                                        366
                                                                                                                                                                                  349
                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                   969
                                                                                                                                                                                                                                                                                                 328
                                                                                                                                                                                                                                                                                                                           909
                                                                                                                                                                                                                                                                                                                                                                                   849
                                                                                                                                                                                                                                                                                                                                                        317
                                                                                                                                                                                                                                                                                                                                                                                                              311
                                                                                                                                                                                                                                                                                                                                                                                                                                           789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                254 GlyAlaHisProProGlnValArgAlaArgTleTyrLeuAlaAlaGlyGluAlaArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        234 GlyHisHisLeuGluGlyArgArgGlyArgProArgProGlnGlyArgGluAlaGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               214 ArgGluArgHisProProThrAlaArgAspValLeuArgGlyGluProGlyHisGlyAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174 ProProArgArgGlyArgSerArgGlyThrHisArgArgHisLeuArgGlnAlaProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       249 CAACTACCTGGTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGGGGTCACCACGGT
                                                                                 CGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCG
 ArgGlySerThrAlaAlaValProArgProLeuProArg--
                                                    AlaAlaTyrAlaSerValPro---AlaHisAlaProAlaHisArgGlyArgLeuArgVal
                                                                                                                    ArgArgAlaHisProAspAla --
                                                                                                                                       CGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGA 1148
                                                                                                                                                                  ArgGluGlyAlaLeuProAlaAla------HisProAspAspArgArgArgArgArgArg
                                                                                                                                                                                               CGACGTGGTGCCCGAGCTGCAGCCGGCCGGCCCATCTACTTCATGATGGACGAACCCGA 1088
                                                                                                                                                                                                                                                      CCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAGTA 1028
                                                                                                                                                                                                                                                                                                               GCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTT
                                                                                                                                                                                                                                                                                                                                                                       CGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                             CAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGC 848
                                                                                                                                                                                                                                                                                                                                               ArgArgGluThrProProArgProHisSerArg-----
                                                                                                                                                                                                                                                                                                                                                                                                            GlnGlyGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCA 788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGC 728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAAGCCAT----GGCCAGCGGCGCCATCGGCATTTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuProGluProArgProLeuGlyValArgThrValHisArgGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   {\tt ProhlaValArgGlyProhspGluAspGlnAlaArgGluPheArgGlyProArgHisArg}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCCATTCAAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGACCTGCTGGACGAAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgGlnArgLeuArgGluGlnProArgHisAlaGly---ArgProArgArgArgGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACCCCGCCCCCC
                                                                                                                                                                                                                                                                                     -----LysargargaspThrGlyalaHisHisArgHisTrp----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----GlyArgHisAlaSerAspArgValGlnAspGlyAlaHisPro
                         ---CCTGGGCCTGTTCCCGCTGGAGACGCGGTATGGAAGAT 1250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GCTGCGCG--------CGCGGTCATGCCGGACTTGCAGCG
                                                                                                                                                                                                                            -----ArgArgArgArgArgArgValArgHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----GlyArgLeuArgGlyArgValGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ProArgPro---GlnValProGlyAspPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                   ------AspSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GACCGGCGCCTT
                                                       391
404
                                                                                   1208
                                                                                                              372
                                                                                                                                                                    365
                                                                                                                                                                                                                                                                                                                968
                                                                                                                                                                                                                                                                                                                                                                        908
                                                                                                                                                                                                                                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                     339
                                                                                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    563
                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
```

```
Ş
                                                                    В
                                                                                                Š
           밁
                                                                                                                                밁
                                                                                                                                                         Ş
                                                                                                                                                                                            밁
                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                            US-10-009-782-1 (1-1758) x VNUA_PRVKA (1-1733)
                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
VNUA_PRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                        1578
                                                                                                   1638
                                                                                                                                                                                                           1725 CTCGGCCTTGGACAGGGTCGAGACCGGGATGCCGCTGGCCTGCGACAGGTCTTGCAGGGT 1666
                                                                                                                                                      1665 CATTITCCGGGCCTTGCGCTCGGCGCG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1994
01-FEB-1994
01-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
           794
                                                                    774
                                                                                                                                                                                740 ValGiyGluGiyGlyGluGlnArgArgGluAlaAlaAlaAlaArg----
                                                                                                                                                                                                                                                                                                                                                            8
...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                enhancer regions.";
Virology 179:365-377(1990)
                                                                                                                                755
                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Vlock C., Kozmik Z., Paces V., Schirm S., Schwyzer M., "Pseudorables virus immediate-early gene overlaps with oriented open reading frame: characterization of their
                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; M34651;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-91021039; PubMed-2171211;
Vleek C., Kozmik Z., Paces V., Schirm
"Pseudorabies virus immediate-early go
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pseudorables virus (strain Kaplan) (PRV).
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
Alphaherpesvirinae; Varicellovirus.
NCBI_TaxID=33703;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
01-FEB-1994 (Rel. 28, Last annotation updat
Probable nuclear antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P33485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1251 GACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGGCGGCAGCTGCAGGCCGGGTA 1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VNUA_PRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     419
GlyGlyAlaAlaAlaGluArgGlyAlaAlaAlaArgGlyAspValArg
                                                         GlnArgValValGluHisHisHisAlaHisValLeuGlyValGlyTyrLeuProHisPro 793
                                                                                      CAGGCGCGCGCCCATCACTTCCTTGCCCACGATATCGGGTGGGGCCGTATTGCGAGCGGA 1579
                                         GGG----
                                                                                                                    ---ValProGlyArgAlaArgGlyAlaLeuGlyGlyLeuGlyAlaGluLeuLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---HisArgGlyGlyMetGlnArgGlnProHisAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA47471.1;
                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                 1405
A; 172166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GlnHisLeuArgArgAspGlyArgGlyArgAlaGlyProHis-
                                                                                                                                                                                                                                                                                           274.00
33.43%
28.94%
8.45%
                                                                                                                                                                                                                                                                                                                                                        3.92e-05
                                                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                    Ĭ.
                                                                                                                                                                                                                                                                                                                                                                                                                                POLY-THR.
GLY-RICH.
POLY-SER.
POLY-PRO.
POLY-ARG.
POLY-GLY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                              0C8CD8BE475BB5E2 CRC64;
                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                         Conservative:
                              ---AGGGGCCATGTAGCGGTTTGCGTCCAG 1549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1733 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              430
                                                                                                                                                                                                                                                                         1733
200
31
229
231
40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   an oppositely promoter and
-Gln
 810
                                                                                                                                                   1639
                                                                                                                                                                                754
```

<i>,</i>				•
REPRESENTED TO STAND THE PROPERTY OF THE PROPE	70 AG AG		ор оу оу оу оу оу оу оу оу оу	0y 0
L_HUMAN STANDARD; PRT; 1464 AA.  CA11_HUMAN STANDARD; PRT; 1464 AA.  P02452; Q15176; Q14037; 21-JUL-1986 (Rel. 01, Created) 01-MAR-1989 (Rel. 01, Last sequence update). 15-JUN-2002 (Rel. 10, Last sequence update). Collagen alpha 1(1) chain precursor.  COLLA1.  Homo sapiens (Human).  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.  NCBL_TaxID-9606; [1] SEQUENCE OF 1-472 FROM N.A.  MEDLINE-89025644; PubMed-3178743; Tromp G., Kuivaniemi H., Stacey A., Shikata H., Baldwin C.T., Jaenisch R., Prockup D.J.; "Structure of a full-length cDNA clone for the prepro alpha 1(I) chain of human type I procollagen."; Biochem. J. 253:919-922(1988).		243 GTGGGTGTGGAGTCGATGAAGCCGGGCCGACCACCAGGCCCGACACGTCGACCAGGGT 184 252	450 CGCCGG	9 6 6 8 6 6 6

```
J. Bloz.
[9]
SEQUENCE OF 1-44 FROM N.A.
SEQUENCE OF 1-44 FROM N.A.
SEQUENCE OF 1-44 FROM N.A.
OTTOBER W.P., du
                                    Kuivaniemi H., Tromp G.,
Mutations in collagen g
                                                                                                     collagen
                                                                                                                           de Wet W.J.;
                                                                                                                                                                                                                                                Bornstein P., McKay J., Morishima J.K., Devarayalu S., Gorgellatory elements in the first intron contribute to transcriptional control of the human alpha 1(1) collagen Proc. Natl. Acad. Sci. U.S.A. 84:8869-8873(1987).
 REVIEW
                     FASEB
                                                           MEDLINE-91184577;
                                                                                                                                                                                                                                                                                                                                            "Human
domain.
                                                                      REVIEW ON VARIANTS.
                                                                                                                                                                                                                 Chu
                                                                                                                DNA sequences
                                                                                                                                                                                           Promoter
                                                                                                                                                                                                                                                                                                            SEQUENCE OF 1-34
                                                                                                                                                                                                                                                                                                                           Nucleic Acids
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1229-1454 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                              ofg
                                                                                                                                                                                                                                                                                                                                                                                                                                               Bernard M.P., Chu M.-L., Myers T. Prockop D.J.;
                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-88124208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-71001508; PubMed-4319110;
Morgan P.H., Jacobs H.G., Segrest J.P., Cunningham
"A comparative study of glycopeptides derived from
vertebrate collagens. A possible role of the carboh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Click E.M., Bornstein P.; "Isolation and characterization of the cthe alpha 1 and alpha 2 chains of human Biochemistry 9:4699-4706(1970).
                                                                                                                                                                                                                       EDLINE-85130970;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        conservation of a pattern Nature 310:337-340(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [2]
SEQUENCE
                                                                                                                                                                                                                                   EQUENCE OF 1-34 FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         formation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-71038625;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 1-181 FROM N.A.
MEDLINE-84270697; PubMed-6462220;
Chu M.-L., de Wet W.J., Bernard M.;
Myers J., Williams C., Ramirez F.;
"Human pro alpha 1(I) collagen gen
conservation of a pattern of intro
Nature 310.337-34010840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                            Biol.
                               humans
                                                                                                                                                                           DENCE OF 1-34 FROM N.A.

DINE-65130970; PubMed=2857713;

N.-L., de Wet W.J., Bernard M.P., Fine structural analysis of the human moter structure, AluI repeats, and Fine 10. Chem. 260:2315-2320(1985).
                                                                                                                                                                                                                                                                                                                                                                                                           icleotide sequences of complementary deoxyribonucleic acionipha i chain of human type I procollagen. Statistical structures that are conserved during evolution."; chemistry 22:5213-5223(1983).
ဋ
                                                                                                                                                                                                                                                                                                                                                 ae J.K., Raassina M., Virta A.
Pro alpha 1(I) collagen: cDNA
                                                                                            gene
Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OF 162-301.
                 :2052-2060(1991)
                                                                                     3 in the first intron of one of the enhance transcription.";
. 262:15151-15157(1987).
                                                                                                                                                                                                                                                                                                                               Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245:5042-5048(1970).
                                                                                                                                                                                                                                                                                                           FROM
                                                         PubMed=2010058;
                                                                                                                                                                                                                                                                                                                                                            PubMed-3340531;
assina M., Virta
                                                                                                                                                                                                                                                                                               PubMed-3480516;
                                                                                                                                                                                                                                                                                                                              16:349-349(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=5529814;
                                                                                                                                                                                                                                                                                                         N.A
                                     genes:
                                                Prockop
                                    causes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene structure ntrons and exons
                                               Þ
                                                                                                                                 Plooy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M.P.,
                                                                                                                                                                                                                                                                                                                                                             Α.
                                    of
                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                   Ramirez F.;
n pro-alpha 1 (I)
polymorphic trans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ramirez
                                                                                                                              S.J.,
                                                                                                                                                                                                                                                                                                                                                           Vuorio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ding
                                   rare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cyanogen bromide
n skin collagen."
                                                                                                           human
                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J.-F.,
                                   and
                                                                                                                              Bernard M.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             carbohydrate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           reveals evolutionary
                                                                                                          pro-alpha
                                   some
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eikenberry
                                                                                                                                                                                    l (I) collagen
transcripts."
                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Morabito
                                  common
                                                                                                                                                                                                                                                                                                                                            C-propeptide
                                                                                                                                                                                                                                                                                Gelinas
                                                                                                                                                                                                                                                                                                                                                                                                                                           acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         peptides
                                                                                                                                                                                                                                                            gene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                Ramirez
                                                                                                                                                                                                                                                                                                                                                                                                                               evaluation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fibril
                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
E
                                                                                                                                                                                                                                                                                R.E.;
                                                                                                                                                                                             gene
                                                                                                                             .
F
```

```
Marini J.C., Grange D.K., Gottesman G.S., Le "Osteogenesis imperfecta type IV. Detection one alpha 1(I) collagen allele (CCLIAI) by F J. Biol. Chem. 264:11893-11900(1989).
        VARIANTS
                                                                                                                          WEDLINE-89308591; Pubme
                                                                                                                                                                                                                                                                        VARIANT OI-II VAL-434
MEDLINE-89255493; Publ
                                                                                                                                                                                                                                                                                                                               MEDITINE-89218628; PubMed-3244312;
Labhard M.E., Wirtz M.K., Pope F.M., Nicholls A.C.
"A cysteine for glycine substitution at position
1(I) chain of type I collagen in a patient with m
inherited osteogenesis imperfecta.";
Nol. Biol. Med. 5:197-207(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT OI-II ARG-842.
WARDLINE-8829828; PubMed-3403550;
Bateman J.F., Lamande S.R., Dahl H.H., Cha
"Substitution of arginine for glycine 664
chain in lethal perinatal osteogenesis imp
the peptide defect by in vitro expression
J. Biol. Chem. 263:11627-11630(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT OI-II CYS-926.

MEDLINE-88033031; PubMed-3667599;

Vogel B.E., Minor R.R., Freund M., Prockop D.J.;

"A point mutation in a type: I procollagen gene converts glycine of the alpha 1 chain to cysteine and destabilizes the triple hel a lethal variant of osteogenesis imperfecta.";

J. Biol. Chem. 262:14737-14744(1987).
                                                                                                                                                                                                                                 RNA sequence
                                                                                                                                                                                                                                                       Patterson E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VARIANT OI CYS-1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT OI-II ARG-569.
MEDLINE-8722295; PubMed=3108247;
Bateman J.F., Chan D., Walkers I.D., Rogers J.G.,
"Lethal perinatal osteogenesis imperfecta due to targinine for glycine at residue 391 of the alpha icollagen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VARIANT OI-II CYS-1166
MEDLINE-86287390; PubM
Cohn D.H., Byers P.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *Mutations in fibriliar collagens (types I, II, III associated collagen (type IX), and network-forming cause a spectrum of diseases of bone, cartilage, at Hum. Mutat. 9:300-315(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REVIEW ON OI VARIANTS.
MEDLINE-97169389; PubMed-9016532;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-91374476; PubMed-1895312;
Byers P.H., Wallis G.A., Willing M.C.;
"Osteogenesis imperfecta: translation of the control 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Lethal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dalgleish R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REVIEW ON
                                                                                                                                                                                              Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Natl. Ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H., Byers P.H., Steinmann B., Gelinas R.E.;
osteogenesis imperfecta resulting from a singl
in one human pro alpha 1(I) collagen allele.";
atl. Acad. Sci. U.S.A. 83:6045-6047(1986).
    oi-ii
                                                                                                                                                                                              Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               man type I
Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OI VARIANTS
                                                                                                                                                                                                                                                    Smiley
                                                                                                                                                                                                                                 Smiley E., I analysis of
    ALA-1106;
                                                                                                                                                                                     264:10083-10087(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           262:7021-7027(1987).
                                                                                                                          PubMed-2745420;
                                                                                                                                                                                                                                                    PubMed-2470760;
ley E., Bonadio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         collagen mutation . 25:181-187(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=3016737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed-9101290;
  VAL-1151;
                                                                                                                                                                                                                                 ø
                                                                                                                                                                                                                               perinatal
ARG-1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               database.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , Chan D
                                                                                                                                                                                                                          lethal osteogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         imperfecta.
                                                      , Lewis M.B., K
ion of a point
by RNA/RNA hybr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     o D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the mutant
                                                                                                                                                                                                                                                                                                                                                                                                                    A.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , Cole W.G.;
the collagen alpha 1(
ecta. Demonstration c
ecta mutant cDNA.";
                                                                                                                                                                                                                                                                                                                                                                           mild
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , III, and XI) ming collagen e, and blood v
                                                                                                                                                                                                                                                                                                                                                                                            1017 in an al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the
1(I)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cole W.G:;
the substituti
1(I) chain of
                                                        hybrid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                           / in an aipha
dominantly
                                                                                                Koeplin
                                                      Koeplin D.A.;
mutation in
rid analysis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     phenotype. ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleotide
                                                                                                                                                                                                                          imperfecta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    XI),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (I), fibril-
in (type X)
i vessels.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                helix
                                                                                                                                                                                                                                                                                                                                                                                                                  .U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ion of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            n of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
```

AND

```
밁
                                               γ
                                                                                    밁
                                                                                                                   Ş
                                                                                                                                                     밁
                                                                                                                                                                                 Š
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-009-782-1 (1-1758) x CA11_HUMAN (1-1464)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores
472 ArgGlyGluProGlyProThrGlyLeuProGly---ProProGlyGluArgGlyGlyPro 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Starman B.J., Eyre D., Charbonneau H., Harrylock M., Weis M.A., Weiss L., Graham J.M., Byers P.H.;

"Osteogenesis imperfecta. The position of substitution for glycine by cysteine in the triple helical domain of the pro alpha 1(I) chains of type I collagen determines the clinical phenotype.";
                                   396 TTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGT 455
                                                                                       336 GGCGCCGCTGGACGCCAACCCGCCCCCCCTGGACCTGCTGGACGAGGGAGCGCTC
                                                                                                                                   433 SerGlyGluProGlyAlaProGlySerLySGlyAspThrGly---AlaLysGlyGluPro
                                                                                                                                                                                                                      426
                                                                                                                                                                                                                                                                                       410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT OI-II CYS-422.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-89109573; PubMed-2913053; Constantinou C.D., Nielsen K.B., Prockop D.J.;
"A lethal variant of osteogenesis imperfecta has a single base mutation that substitutes cysteine for glycine 904 of the alpha 1(1) chain of type I procollagen. The asymptomatic mother has an unidentified mutation producing an overmodified and unstable type I procollagen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pack M. Constantinou C.D., Kalia K., Nielsen K.B., Prockop D.J.;

"Substitution of serine for alpha 1(1)-glycine 844 in a severe
variant of osteogenesis imperfecta minimally destabilizes the triple
helix of type I procollagen. The effects of glycine substitutions on
thermal stability are either position of amino acid specific.";

J. Biol. Chem. 264:19694-19699(1989).
                                                                                                                                                                                                                                                     216
                                                                                                                                                                                                                                                                                                                      171
                                                                                                                                                                                                                                                                                                                                                        399
                                                                                                                                                                                                                                                                                                                                                                                     111
                                                                                                                                                                                                                                                                                                                                                                                                         384 ProhlaGlyAsnProGlyAlaAspGlyGln---ProGlyAlaLys----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                type I collagen determines the clinion. Clin. Invest. 84:1206-1214(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANTS OI CYS-272; CYS-704 AND CYS-896.
MEDLINE-90009313; PubMed-2794057;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT OI-II CYS-1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-89380165; PubMed-2777764;
Lamande S.R., Dahl H.-H.M., Cole W.G., Bateman J.F.;
"Characterization of point mutations in the collagen COLIA1 and COLIA2 genes causing lethal perinatal osteogenesis imperfecta.";
J. Biol. Chem. 264:15809-15812(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT OI SER-1022.
MEDLINE-90062068; PubMed-2511192;
                                                                                                                                                                                                                                                                                                                                                                                                                                     51 CCAGCCCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGG 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Clin. Invest. 83:574-584 (1989).
                                                                  GlyProValGlyValGlnGlyProProGlyProAlaGlyGluGluGlyLysArgGlyAla
                                                                                                                                                                   GACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCT
                                                                                                                                                                                                                                                                                                                                                                      GCGGCGCGCCGACCTGGGCGTGCGGGGGGGGGACCGCCATCGGCGATCGGCGATCTGTCGGA 170
                                                                                                                                                                                                                                    CGCCGCCGCGCACACCCCGGGTCGACGT------
                                                                                                                                                                                                                                                                                                                                           AlaAsnGlyAlaProGlyIleAlaGlyAlaPro-----
                                                                                                                                                                                                                                                                     -GlyPheProGlyAlaArgGlyProSerGlyProGlnGlyProGlyGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5.85e-05
270.00
31.95%
26.78%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
                                                                                                                                                                                                    ----ProProGlyProLysGlyAsn
                                                                                                                                                                                                                                                                                                      --- Greegeceregrege 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1464
181
35
269
192
                                                                                                                                                                                                                                                                                                                                                                                                         -Gly 398
                                                                      471
                                                                                                     395
                                                                                                                                                                   335
                                                                                                                                                                                                      432
                                                                                                                                     451
                                                                                                                                                                                                                                                                       425
                                                                                                                                                                                                                                                                                                                                        409
```

```
AG daill F., Wiedemann H., Mann K., Timpl R., Engel J.;

"Molecular characterization of cuticle and interstitial collagens

or from worms collected at deep sea hydrothermal vents.";

"I MOI. BIOI. 221:209-223(1991)."

"I SUBUNIT HOMOTETRALE FORMING COLLAGEN.

"I SUBUNIT HOMOTETRALER.

"I - PTM: ALL THE "X" ARE PROBABLY GLYCOSYLATED HYDROXYLYSINES.

PR PIR; 522915; 522915.

"I InterPro; IPRO00087; Collagen.

Pfam; PF01391; Collagen; 16.

WEXTRACELLULAR MATCHIX; Connective tissue; Repeat; Hydroxylation;

"M Glycoprotein; Collagen.

DOMAIN 12 NONHELICAL REGION (N-TERMITRAL)
                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                       **PF_RIFPA STANDARD; PRT; 1027 AA. 2 50754; PRT. 1027 AA. 2 50754; PRT. 1027 AA. 2 701-JUL-1993 (Rel. 26, Created) PRT. 15-JUL-1993 (Rel. 26, Last sequence update) Fibril-forming collagen alpha chain. Riftia pachyptila (Tube worm).

**C Eukaryota; Metazoa; Pogonophora; Vestimentifera; Riftilda; Riftildae; Riftila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                          MEDIINE-93130909; PubMed-1483468; Mann K., Gaill F., Timpl R.; "Amino-acid sequence and cell-adhesion activity of a collagen from the tube worm Riftia pachyptila living hydrothermal vents.";
                                                                                                                                           TISSUE-Cuticle;
MEDLINE-92015209; PubMed-1920405;
                                                                                                                                                                  SEQUENCE OF 8-45; 525-618 AND 810-882
                                                                                                                                                                                                                                                                                                                                                                                                                           1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1574
                                                                                                                                                                                                                                                                                                                                                                                                         967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1517
                                                                                                                                                                                                                                                       EQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1289 GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGGTTCGACCCGGCCACGGTGG 1348
                                                                                                                                                                                                                                                                                                                                                                                                 gGlyGluArgGlyPheProGlyLeuProGlyPro 978
                                                                                                                                                                                                                                                                                                                                                                                                            CGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCA 1733
                                                                                                                                                                                                                                                                                                                                                                                                                                  YThrProGlyProGlnGlyIleAlaGlyGlnArgGlyValValGlyLeuProGlyGlnAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGACCT------GTCGCAGGCCAGCGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        oProGlyProAlaGlyGluLysGlySerProGlyAlaAspGlyProAlaGlyAlaProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               o-----ArgGlyGluThrGlyProAlaGlyArgProGlyGluValGlyProProGlyPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GlyAsnAlaGlyProProGlyProProGlyProAlaGlyLysGluGlyGlyLysGlyPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAACGGGGGGGGGGCCCCCCCCCCCCAACCCT---GGACGCAAACCGCTACATGGCCC 1573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyPhe-----ProGlyAlaAlaGlyArgValGlyProProGlyProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnValGlyAlaProGlyAlaLysGlyAlaArgGlySerAlaGlyProProGlyAlaThr 874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspAlaGlyProProGlyProAlaGlyProAlaGlyProProGly-----ProIleGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCGCCGGCATCCATTCCGTGTACG 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaLysGly---GluProGlyAspAlaGlyAla-----LysGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GGAAGTGATGGGGGGGGGCGTGCGGGGGGGGGGAAAGGGCGGGAAAATGACCCTGC
                                                                                                                                                                                     210:839-847(1992).
                                                                                                                                                                                                                                                                                 Pogonophora; Vestimentifera; Axonobranchia;
            NONHELICAL REGION (N-TERMINAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------CATCG
                                                                                                                                                                                                       fibril-forming at deep sea
                                                                                                                       collagens
                                                                                                                                                                                                    deep sea
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 836
        MOD_RES
                                                                                                                                                                            MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                 MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                       MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                   MOD_RES
                                                                                                                                                                                                                                                                                                                                      MOD_RES
MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
           IMPERFECTION IN THE GAA REPEAT. HYDROXYLATION (PARTIAL). HYDROXYLATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYDROXYLATION
HYDROXYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYDROXYLATION HYDROXYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYDROXYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRIPLE-HELICAL REGION (C-TERMINAL).
NONHELICAL REGION (C-TERMINAL).
HYDROXYLATION (PARTIAL).
HYDROXYLATION (PARTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYDROXYLATION
(PARTIAL)
                                                                                               (PARTIAL).
                                                                                                                                     (PARTIAL).
(PARTIAL).
(PARTIAL).
                                                                    (PARTIAL)
                                                                                                                                                                                                                                                                                                 (PARTIAL).
                                                                                                                                                                                                                                                          (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                         (PARTIAL)
(PARTIAL)
(PARTIAL)
(PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (PARTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (PARTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (PARTIAL)
```

Db 404 ProGlnGlyLeuAlaGlyLeuGlnGlyArgAlaGlyProProGlyAlaArgGlyGluPro 423	388	Db 368 IleAlaGlyLeuProGlyAsnProGlySerAspGlyArgProGlyLysAspGlyArgPro 387	02CACCCCGGGGCGGGGGGGGGGGGGGGGGGGGGGG		3 3	US-10-009-782-1 (1-1758) x CAFF_RIFPA (1-1027) OV 3 ATTCCACTTCATCCACCACCACCACCACCACCACCACCAC	Match:	Matches: 165 Conservative: 48	ment Scores:  No.: 6.34e-05 Length:	SEQUENCE 1027 AA; 94353 MW	1019 1019 1020 1020 903 903	MOD_RES 1014 1014 , MOD_RES 1016 1016 MOD_RES 1017 1017	MOD_RES 1013 1013 HYDROXYLATION MOD_RES 1013 1013 HYDROXYLATION	MOD_RES 984 MOD_RES 990	MOD_RES 954 954 MOD_RES 963 963 MOD_RES 966 966	MOD_RES 939	HYDROXYLATION.	MOD_RES 888 MOD_RES 894	MOD_RES 855 855 MOD_RES 861 861	MOD_RES 843	MOD_RES 815 815 MOD_RES 816 816	MOD_RES 783 783 HYDROXYLATION. MOD_RES 783 783 HYDROXYLATION.	MOD_RES 759 759 MOD_RES 773 773	717 723 723 744 744	MOD_RES 711 MOD_RES 714	MOD_RES 648 648 MCD_RES 663 663 MOD_RES 708 708	647 647 HYDROXYI TON
				o .																							•
					<del></del> -										<u> </u>	· .	-	<del></del> -	-		· ·						
B 8	B 5	}	Q 5	P	₽	문	δ, δ	γ Q	Дb	δĀ	B 7	0 0 0 0	Ω <u>ν</u>	B 7	₽ ₽	, Qy	da Z	0 5	; Q	<b>D</b>	Qy	da d	Q .	g dg	<b>8</b>	Qγ	
1236 GGCGGTATGGAAGATGACCGGCCTGACCGGCGGGGGGGTTCGGCCTGGCCCGGGCGGG	640 GlylleGlnGlyGlnProGlyProProGlyAspAlaGlyProAlaGlyThr***GlyAsp		1140 GCCGCACGACGACGACGACGACGACGACGACGACGACGAC		1020 ATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGCCATCTACTTCATGATGGA 1079 ::: ::		960 CAAGCCCTTCCCCGAACTGAGCGGGGGGGGGGGATGAAGTGGGGGGGG		545 AlaLysGlyGlnGlyGlyProProGlyProAlaGlyLeuValGlyLeuProGly	840 GATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGCC	534 AlaglyProThrGly	780 CTCCACCAAACCTTATACTAC	720 CGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGAT	525		600 CGGCGCTTCTACCCGCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTGCCG		501SerGlyProAlaGlyProGlyGlyGluArgGlyAlaProGlyAsp		482 ThrProGlyGluAlaGlyLysThrGlyGluArgGlyAlaValGlyAlaThrGlyPro	420 CTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCA 479			300 CACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCGC	424 GlyLysAsnGlyAlaProGlyGluProGlyAlaH1sGlyGluGlnGlyAspAlaGlyLys	243CGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGT	

```
the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for content a license agreement (See http://www.isb-sib.ch/agor send an email to license@isb-sib.ch).
                                                                                                                                                                                                           Campbell B.G., Wootton J.A.M., McLeod J.N., Minor R.R., Sequence of normal canine COLIA1 cDNA.", Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.

I- FUNCTION: TYPE I COLLAGEN IS A MEMBER OF GROUP I COLLAGEN (FIBRILLAR FORMING COLLAGEN).

SUBMIT: TRIMERS OF ONE ALPHA 2(I) AND TWO ALPHA 1(I) CHAINS. UNIT (G'X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

UNIT (G'X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.
                   EMBL; AF153062; AAD34619.1;
InterPro; IPR000087; Collagen.
InterPro; IPR000885; F1b_collaç
                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9XSJ7;
30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-Skin
                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID-9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia; Eutheria; Carnivora; Fissipedia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
Collagen alpha 1(I) chain precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CA11_CANFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1686 GGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCCCT 1742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    813 GlyGlyProPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGluArg-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCGCGCGCCTGCGCGCGGAGCGCAAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGCA 1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyMetValGlyLeuArgGlyGluThrGlyProMetGlyGlyGlnGlyMet***GlyAsp 812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGC---CCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGAT 1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    roProGlyValSerGlyProThrGlyAlaProGlyGin-GlnGlyGluArgGlyMetPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCCGGCGTGAACGGGGGGGGGGGGGCGCCCCCCCCCAACCCTGGACGCAAACCGCTACAT 1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rgGlySerAspGlyGluProGlyArgAspGlyThr***GlyGluArgGlyGluAspGlyP 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       lyLysGlnGlyVal***GlyAlaArgGlySerProGlyLeuValGlyLysGlnGlyAspA 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGTCTGGC-----AAGAGCAGGCGTTCACCGGCCAGCATGCCGGCGCGCGTGCTCGC 1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          roSerGlyGlnProGlyProSerGlyPro------AlaGlyThrAlaG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCGAACACCCTA---CCGAGGGCGCGCCGGCATCCATTCCGTGTACGTCAACGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyAlaGlnGlyGluIleGlyLeuProGlySerProGlyGlnProGly--LeuProGlyP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProArgGlyLeuAlaGlyLysArgGlyLeuArgGlyAlaGlyGlySerArgGlyGluThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGCAGGC------CGGGTACTTCGCCGACCTGGTGGTGTTCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
              Fib_collagen_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata; Craniata; Vertebrata;
Carnivora; Fissipedia; Canidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------GlyAsnAlaGlyProGlnGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --------CCCGGCCACGGTGGCCGATACCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GlyProSerGlyAsp-----Arg
                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1460 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
Canis.
                                                                                                                                              8
                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1334
                 밁
                                              S
                                                                                  밁
                                                                                                                 S
                                                                                                                                                     밁
                                                                                                                                                                                   Ş
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                        ğ
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-009-782-1 (1-1758) x CA11_CANFA (1-1460)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR DR DR DR KW
555 aGlyGlnAspGlyArgProGly-
                                                                                                                                                            469 ATGGTGGGCCATTCAACGCTGCGCGCGCGGCGTCATGCCGGACTTGCAGCGCGCCGCCACC 528
                                                                                                                                                                                                                                                        409
                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                                                                 349 CACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                             490
                                                                                                                                                                                                                                                                                                                                                         491 ----
                                                                                                                                                                                                                                                                                                                                                                    289 TCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        474 hrGlyLeuProGlyProProGlyGluArgGlyGlyProGlySerArgGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         454 yProProGlyProAlaGly-GluGluGlyLysArgGlyAlaArgGlyGluProGlyProT 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            435 ProdiyasnLysGlyaspThrGlyAlaLysGlyGlu-ProGlyProThrGlyIleGlnGl 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Extracellular matrix; Connective tissue; Repeat; Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS01208; VWFC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART; SM00038; COLFI; 1. SMART; SM00214; VWC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProDom; PD000007; Collagen; 1. ProDom; PD002078; Fib_collagen_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01391; Collagen; Pfam; PF01410; COLFI; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001007; VWF_C.
Pfam; PF01391; Collagen; 18.
                       euThrGlySerProGlySerProGlyPro--AspGlyLysThrGlyProProGlyProAl
                                                                                         GACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATC
                                                                                                                            --GlySerProGlyGluAlaGlyArgProGlyGluAlaGlyLeuProGlyAlaLysGlyL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IGNAL
                                                                                                                                                                                                                               CGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                      GACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------CCATCGGCGATCTGTCGGACGCCGCCGCGCACAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---CGGGGCGGCGCGCGACCTGGGCGTGCGCGACCGCATCGCCG---
                                                                                                                                                                                                                                                                 ----AlaGlyProLysGlyProAlaGlyGluArg-------
                                                                                                                                                                                                  -----GlySerProGlyProAlaGlyProLys---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ------cceeerceacerereeeeccreercececcceecrreare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.76e-05
268.50
31.92%
27.70%
§.14%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      138762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Signa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRIPLE-HELICAL REGION.

NONHELICAL REGION (C-TERMINAL).
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).

N-LINKED (GLCNAC...) (POTENTIAL).
MW; 58E3674D2B570697 CRC64;
```

₹.

(POTENTIAL).

Length:
Matches:
Conservative:
Mismatches:

1460 177 27 247 247 188

Gaps: Indels: AMINO-TERMINAL PROPEPTIDE. COLLAGEN ALPHA 1(I) CHAIN. CARBOXYL-TERMINAL PROPEPTIDE.

BY SIMILARITY.

NONHELICAL REGION (N-TERMINAL)

ROCCORPIN

밁 Ş 밁 Ş ₽ Ş

Ş 문 S 몆 Ś 밁 Ş 문

ProProGlyProProGlyAlaArgGlyGl

572 634 555

536

516

507 408 497 348

---PheProGlyAlaAspGlyV

288

490

228

151

490

	GGCAA 1616	CICCICGCATACGGCCCCACCCGATATCGTG	-	
٠.	ysGluGlyGl	Ser-GlyAsnAlaGlyProProGlyProProGlyPro	884	4 5
	ACGCAAACCGCTACATGGCC 1572	GTGAACGGGGCGCGTGCCGCCCCCCCAACCC	-	Υ.
	CCTTACAATCC 1512        GlyArgValGlyProProGlyPr 884	aThrGlyPheProGlyAlaAlaGly	σ ,	Ď. 1
	SerAlaGlyProProGlyAl 869	::: lyAsnValGlyAlaProGlyProLySGlyAlaArg	849 1465	₹ 8.
	ro11 84	TACGTCAACGGCGCGCCGCCGTCTGGCAAGAGCAGGCGTTCT	1405	₹ 8
	ATCCATTCCGTG 14	GGCCGATACCGCC	1345	¥ ¥
	TGGTGTTCGACCCGGCCACG 1344	GETAGE   G	819	¥ \$
	ProGlyAlaAspGlyGlnPr 819	::     luProGlyProProG	• •	£ &
	pargGlyG 800	ACGGCGGTATGGAAGAT	1234	Ą
	CCCCTGGAG 1	CGGGT	1186 780	음 경
	SGCCTGTGGGGGCACCTTCCCG 1185			B 5
	G 7	laGlyPr	744	8 8
	ATC 11	TACTTCATGATGACGACGAACCCGACGTGCAGCGCATCCTG	1066	δ
	TOLYSGLYASPATGGLYASDA 744	Incompared to the conference of the conference	724	₽ ;
	lyAlaproGlyLeuGlnG 724	o yas	1027	5 5
	GCCGAGCGCGCAAATCCAAG 1026	TTC	967	\$ 5
	70	roc	687	g D
	CACCTGGTGCAAGCCC 96		909	δÕ
	luArgGlyValGlnGlyProp 687	Lyp	667	8
		ရှ	. 877	γQ
	ACGTCTCGCTG 8	7 1	4	망
	P 64	3 CGCGAGACGCTGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGAGGCGCTGATCGAGAGAGGCGCTGATCGAGGCGCTGAGGCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGCCCAGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGATCGAGGCCCGCTGAGGCCCGCTGAGGCCGCTGAGGCAGGC	N (	δ.
	GGGCCAGCCCAATTTCGGCCGCTCG 822	TOTAL AND TOTAL AND THE STREET	ن ند	B :
	laGlyGluArgGlyGluGlnG 631	2 laGlyAlaGlnGlyProProGlyProAlac	61 78	S B
	TCG 7	CTGGAGGAAACC	73	δō
	F - 6	92 yGluArgGlyValProGlyProProGlyAlaValGlyProAlaGlyLyBASP-GlyG	59	В
	900 J	0 GCGCATGGCGGC	67	γQ
	- C 66	N		8
	 	5	63	ρ

_																—.													
	닭	δō	ы	0			HOME S																						
	σ		Ъ	γ	B 8	us-10-	Alignment Pred. No. Score: Score: Percent S Best Loca. Query Matabase	SO						888					288		3555	RESULT 5E5_RA ID 51 AC Q	В	Ϋ́	Дb	QY	망	Qγ	B
	340 p	123 C	322 -	63 C	3 A 315 V	-600	No.: No.: int Sim Local	EMBL; D37934 DNA-binding; SEQUENCE 8		entities	-	between	This			Suzuk "Clon	STRAI	[1]	Eukaryota; Mammalia; I NCBI_TaxID=	Rattu	01-NOV-1997 01-NOV-1997 01-NOV-1997	ET 15 RAT 5E5_F Q6300	963	1699	943	1672	923	1617	903
,	-TrpTl	CTGGG	Glyc	CIGCIO	ATTCCAC :::    ValPro	82-1	Scores milari simil	D37934; inding;   NCE 82		les re	by no	en the	SWISS-PROT	UBCELI	protein 5E5 j J. Biochem. ]	ing a	NE-96	NCE F	yota; lia; TaxID	s nor	ν-199 ν-199	RAT	rgGly	GCGGI	lyThz	CAAGACCT-	roPro		ysG1)
		GTGCG	lyArg	CTCGC	ATTCCACTTGATCGCGGAAGGA :::             ValProLysAspArgGlyGlu-	(1-1758)	nent Scores: No.: Similarity: Local Similarity: Match:	22.7	an email to	requires a	non-profit	reen the Swiss Institute of Bioin European Bioinformatics Tratitute	PROT	TISSUE SPECIFICITY: EXPRESSED	otein 5E5 in the nervous system.", Blochem. 118:122-128(1995)	Suzuki E., Kojima	STRAIN-Wistar; TISSUE-Brain MEDLINE-96015159; PubMed-R5	FROM N P	iryota; Metazoa; ( nalia; Eutheria; ] [_TaxID=10116;	Rattus norvegicus	7 (Rel. 7 (Rel. 7 (Rel.		GluAr	CTCGA	ProGL	TOO	GlyPr	GGAAG	  Alaarg
	::: luSer	CGGCG	GluTr	GGGGG	SATCGCGGA            AspargGly	× (8	8.22e-( 267.00 32.33% 26.33% 8.09%	BAA07153.1; Nuclear prot AA; 86831	6	S & 1	fit:	ss In	entry	FICIT	he ne 122-1	uence	ISSUE	<b>⋫</b> `			1. 35,	STANDARD;	gGl yPł	ccrg	yProG]		OAlaG	TGATG	gGlyG:
•		ACCGC.	рG1уР1  -	GCACC	AAGGAO       YGlu-	5E5_RAT	22e-05	153.1; r protein; 86831 MW;	cense	license	it instit	etitut	18 00	ION: 1	rvous 28 ( 199	Yosh:	-Brain		i; Chordata; i; Rodentia;	₽.	Created) Last seq Last ann	RD;	leProG	CCAAG	lnGlyi	6	lyGluI	360606	GluThro
		TCGCC	oG1uA	TCATO	BAGATT	AT (1-			@isb-	agre	institutions a	Swiss Institute of Bio	CODVITA	A-BIN Auclea RESSE	syste	Yoshimura K.	SUE-Brain;				ted) seque annot	פַּי	  YLeu	GCCGA	leAla	TCGCA	узс1у	TOOOT	 Glypro
		GCCATO	laAlac	GACGG	TCCAT	825)	Length: Matches: Conserva Mismatch Indels: Gaps:	tigen. 9667FE	license@isb-sib.ch)	agreement	s as ]	Bioini	7	T. IN I		T. C.	•		aniat		ted) sequence up annotation	PRT;	 	GCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCA	GlyGln	GTCGCAGGCCAGCGG	::: SerPro	606060 -	AlaGl <sub>y</sub>
		CCTGGGCGTGCGCGCGACCGCATCGCCCATCGGCGATCTGTCGGACCCCCCCC	-GlyGlyArgGluTrpGlyProGluAlaAlaGlnGluHisGlyGluAlaAlaArg-Ag	CCTGCTGCTGCGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGGGGG	ATTCCACTTGATCGCGGAAGGAGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGA		Length: Matches: Conservative: Mismatches: Indels: Gaps:	Antigen. AF667FE2FD555BDF		See	long as	orma 1	,	IN NEURONS	ļ	emura			Craniata; Ver Sciurognathi;		update) on update	825 AA		CCA 1	lyThrProGlyProGlnGlyIleAlaGlyGlnArgGlyValValGlyLeuProGlyGlnA	 	roProGlyProAlaGlyGluLysGlySerProGlyAlaAspGlyProAlaGlyAlaProG	-GOAAGTGATGGGCGCGCGCGCGCGCGCGAGCGCAAGGCCCAAGGCCCGAAAATGCCC-J-	ysglyAlaArgGlyGluThrGlyProAlaGlyArgProGlyGluValGlyProProGlyP
		TCTGT	Hisch	CACCC	ÁTCCG					http://	as its	5		ທ .		, z			Vertebrata; hi; Muridae		e)	٢	74 .	1733	yvalve		AspGI	GCAAG	    ::       ::
		TGA CC	7GluA1	ceeee	ATTCC		825 158 36 221 185	CRC64;		YWW.	cont	֓֜֜֜֜֜֜֝֟֓֓֓֓֓֓֓֓֟֝֟֝֟֝֟ ֓֓֓֓֓֓֞֓֓֞֓֓֞֞֞֓֓֓֞֞֓֓֞֓֞֡֓֡֓֓֡֓֞֡֓			91016	Obata			::						ılGlyL		l I I I I I	in in	:: LuValc
House and the	-6	in the second	BALAA	GGCGC	CAGCCC	•				`and isb-si	restr	the EM				;; ;;			Euteleostomi Murinae; Ra					٠	euPro		laGly	TAAAG	)lvPro
FroArgT		, C. C.	11 - 11 11 - 11	GCCGA	TTCGA		.*			FOR	S tic	EMBL out			TUGIN	Akagawa			stomi e; Ra					•	GlyGlr	CATC	AlaPro		ProGl
348	106	9	340	123	62					commercial	18 00	collaboration -				a X . ;			m1; Rattus.						-		oG 943		νρ 923
									,	cial	1ts way	on -														Φ	٠		

	CCT 12		1206	~
	DECEGETECTEGEGCACTATEC 1205 		616	0 '
	AlaGlySerProSerAlaArg 615	G1YSerG1yLeuSerG1yThrArgG1uAsp	1149	< ε
	rcgccrccacgccrgccccacga 1148	CGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGA	· ~	7 ~
	GC17ATGGACGAACCCGA 1088 	-	ن. در	
	TOTAL SET ALL	THE STATE OF THE CONTRACT OF THE STATE OF TH	10.	4
	AGTACGACGTGGTGCCCGA 1043	LeuGlyGlyArgGlyArgArgGlySon	<u>u</u>	<b>5</b> ~
	yProGlyProAlaAlaAlaThr 561	GlyAlaProThrAlaHisAlaHisAlaValProGl	o in	4 5
	CCTTCCCCGAACTGAGCGGGGGGGA 989	GGCCGGACGCACCATCATCACCTGGTGCAAGC	· •	. 4
•	.::	LeuGlyThrThrSerGlyGluGlnArgAlaAspGl	G,	Ē.
	OGlyAspAlaThrLeuValLeuGly 522	GGACGCGTATCCCTACGTGGCCGCGCTTCTACCA	ω (	₹ 8
	AGGACGTCTCGCT875	GACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCC	л со	ŕŸ
		argGlyArgAlaArgGlyProArgGlnGlnAlaAr	4	୍ଞ
	oglu-glyglnalaglyglyglypro 483	lyProAlaGluGluAlaGlyAlaSerAlaPro	. د	₹ ₽
	SAGCTGGACGTGCCGGTGGTGATCTC 782	GGCCGCTGGAGGAAACCTTCCGCATCGGCTCGCG	-	₽
	ATGCGCGACGAAGGCGAGCACATCGT 722   ::: :::::    rAlaThrSerAlaSerAlaThrGlyG 465	rgLysGlyArgMetGlyArgGlnLeuGluThrThr		문
	GATGATGPTOATGLYSATGATGCCGGCC 662	· · · ·	b 427	₹ ₽
	UALEGLYProArgGluTrpGlyProS 427	င္ပ		Ş
	AGCGGCGCCATCGGCATTTCGACCGG 602	: 60	y 543 b 410	B 8
	409	. ]	4	말
		Ş.	4	. 6
	uSerProArgGluTrpGly 409		Db 397	ט
	AACGCCGCTGTATGGTGGGCCATTC 482	3 CCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTC	0у 42	0
	TACCGTTTCGAGCGCTTCGCCGACTA 422	4 rgGluPro		U
	TPProAlaTrpProSerProGlnGluA 394	3 CGCCCCCTGGACCTGCTGGACGAACGAACGCCCCTCT	•	O I
	GCGCCGCTGGCGCACGCCAACCCGCC 362	)3 CACGGTGGTCACGGGCAATTGCGGCATCAGCCTG	OY 303	J 0
	   euAlaProGluArgLeuGlyAspGlyP 384	64 laGlySerSerProCysAlaLeuArgGlySerLe		
	SACGCCCAAGATCTCGCAGGGCGTCAC 302	43 CGACGACAACTACCTGCTCAGGCGTCGCGACATG	ОУ 243	_
	GCCCGGCTTCATCGACTCGCACACCCA 242       :::    GlySerSerSerArqAspAlaa 364	348 hrLeuGlyGluAspAlaArgAspTrpGlySerSerSerArgAspAlaA 36		-
		183 CACCCGGGTCGACGTGTCGGGCCTTGGTGGTCGC	Ωy .	_

	ArgArgProAlaArgArgProArgGlyGluLeuThrProGlnArgPro 768	753	р	
	GGGCGCGCCTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCT 1679	1626	ρy	
752	JeuThrCysAlaGlyAspProGlyAlaSerArgProGlySer	737	Дb	
1625	CTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGAT	1578	Ωу	
736	ValGlyGlyPheProProProProThrArgProProProValLeuLeuProLeu	717	Db	
1577	GAACGGGGCGGCGTGCCCCCCCCCCCAACCCTGGACGCAAACCGCTACATGGCCCCCTCC 1577	1518	Q.	
716	PheArg	715	D D	
1517	CGGCCGCGTGCTCGCACGCACGCCCTGACGCCTGACGCCCTTACAATCCGCGT	1458	. Q	
714	ArgTrpValSerGlnGlnArgGlnArgLeuTrpArgGln	702	) D	
1457	401 CGTGTACGTCAACGGCGCCGGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGC 1457	1401	οy	
701	HisGlyAlaIleAsnAlaProSerAlaProAspAlaSerProProHisHisProArg	683	מנו י	
1400		1341	. Q	_
682		.667	g D	
1340	GGCCGGGCGCGGCAGCTGCAGCCGGGTACTTCGACCCGGC	1281	Ϋ́	
666	LeuProArgGlyArgAspArgLeuProLeuArgPro	655	d Db	
1280	GTTCCCGCTGGAGACGCCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCT	1221	γQ	
654	SerThrArgGlyArgAlgAlgAlgGlyGlnArgThrGlyGluGluAlaGlnAspGlyLeu 654	635	Дb	

Search completed: May 11, 2003, 12:10:53 Job time: 73 secs

```
GenCore version 5.1.4_p5_4578
```

/sec
------

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

																														-		_	_	_				_		_	
																																٠									
						O		O		n		O	C	-			o	o		a		O					ο Ω		o (	ם מ	,								. 8	D D	
	45	44	A 4	4	40	39	38	37	υ (	1 (L)	ω ω	32	3 c	2 2	28	27	26	25	2 2	2 2	21	20	19	18	17	y 0	14	13	12	15	. 6	œ ·	70	n U	44 1	ω	N F	_ ;	No.	-	
	w			ω,		85.2	<u>ت</u> .	٠,	ະດ	87.8	~1	<u>.</u>	200	9.5	ē	91	: ي		0 y y	۰,		٠.	94.2		•	•	99.2	107.4	116	306	55	ω.	ມα		9.	v	1758	1	Score	٠	
		4 4 0 0					0		_	5.0	5.0		٠ <u>-</u>	÷	Ļ	5 2		J	·	w	w		ن 4	ла	'n	Ġ		_:	, c			0.	_ <b>:</b> _	٧	• •	٠.	100.0		Query Match	dp	
	10000	3619 24800	3578	1839	09519	25362	10720	2427	41906	30657	1746	13848	110000	33779	15141	35654	35033	2/541	110000	34766	4039	8438	2122	113103	123580	65140	14710	28751	22251	110000	1467	208050	1455	1455	1980	1758	0 1758		Length		
	,	·		٠.,	. ,		- "	, 0			<b>-</b>	<b>-</b>  -	٥,	۳	14	<b></b> }	ــر مــ			<b>–</b> 1		 				6			مر د					ᆫ			ח סח	İ	DB		
	LMFLCHR36_03	-	AF005277	AX196078	AX195920	SC#46 86671888	AC084329	AX417445.	SC5C7	٠,	AF4 25992	SC2G5	LMFLCHR36_31	SCGD3	SHIPROTE	SC7H1	SC6D7	AX211706	LMFLCHR32_06	SCC121	AF425901 .	HEFVLE:	AF357202	AX211739	AF263912	AX211705	AE006004	- AF453501		LMFLCHR34_10	AFAA6		AF332548	AFANADA	S80683	7	0011		ID.	SOMMAKIES	CLEAN 0.490
CONCINUACION (4 OI	AL049727 Streptomy	Y13070 S.coelicolo	AF005077 Collulation	AX195929 Sequence	AL133424 Streptomy	AF319998 Stigmatel	AC084329 Leishmani	AX417445 Sequence				AL035478 Streptomy	tion (12	~			AL133213 Streptomy	AX211706 Segmence		AF425991 Streptomy	M57505 Pseudorable	٠.	AF357202 Streptomy		AF263912 Stropton:	a	-		AL591857 Streptomy	Continuation in	46083 Ralstoni	D45919 Alcaligenes	3254A	2 6	d0042	9056 Transfo	BD011857 Transform	scriptio	•		

## ALIGNMENTS

					•		
TITLE JOURNAL	REFERENCE	SOURCE ORGANISM	KEYWORDS	ACCESSION.	LOCUS DEFINITION	BD011857	RESULT 1
Takeuchi,K:, Koide,Y., Hirose,Y., Mbriguchi,M. and Isobe,K. Transformant microorganism and process for producing D-aminoacylase Patent: WO 0078926-A 1 28-DEC-2000;	unclassified. 1 (bases 1 to 1758)	unidentified unidentified	BD011857.1 GI:22092046 WO 0078926-A/1	D-aminoacylase.  BD011857	BD011857 1758 bp DNA linear PAT 02-AUG-2002		

Pred. No. is the number of results predicted by chance to have a

_		_																
. Ω	<u>В</u> .	ę g	5 B	δ Β	8 8	oy D	& B	8 B	δο Θα	8 B	γο g	. P	Оу	a w	BASE ORIG	<b>19</b>		8
721 GT		661 C	541 G	481 I	421 1	361 ( 421 :	361	241 301	181 241	121 181	<sup>"</sup> 61	61 1	Ę,	st.	GIN	FEATURES Source		COMMENT
GCC	CCGCTGAG		GCGCC1	CAACG	raccie	TACCTG	ACCACC	CACGAC	CACGA	GACCT	GACCI		1758 GAAT	Match ocal s	Ŋ	. 9	022822:	
CGCTGG	11111	TCTAC	TCTAC	TIGCGG	GACGCG GACGCG	GACGCG	CCCCT	GACAA	CCGGGT		GGGGG	CCACT	COR	imilar	281	1 Кеу	PR 173 PI KE MITSUAK PI KI PC C1	MANO PHA OSHIHIKO OSHIHIKO S Alca: N WO 01 D 28-DI
AGGAA	ATGGC	200000	IIIIII GACCTO	IIIII GCCGCC	GCCGC	HIIIII GACCT FTTGCG	CACGGG	CACGGG	CTACC	I I I I I I	recece recece	TGATCG	Servat	itv	/org /db_	Loca	-JUN- -JUN- NICHI I MORI MIYASC 2N1/21	HARMA KO HI Calig
CCGCCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGG	AGCGCGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGGACACATC					CGCCCCCTGGACCTCGCGACGCTTCCCGACGCTTCCCGACGCTTCCCCGACGCACGC	ACCACGETGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCCACCCGCCAACCCGCCACCGCGTGGTCACCGGCGCGCGC					GAATTCCACTTGATCGCGGAAGGAGAGATTTCCATGTCCAATCCGATTCCCAGG	Live CGGAA	Match 100.0%;	anism xref="662.c	Location/Qualifiers	R 17-JUN-2000 WO 2000JP003932 R 17-JUN-1999 JP 90P 170555 I KENICHI TAKSUCHI, YOSHINAO KOIDE, YOSHIHIKO HIROSE, PIITSUAKI MORIGUCHI, I KIMIYASU ISOBE C C12N1/21,C12N15/52,C12N9/80	CEUTIC ROSE, M Bnes x 926-A/
CGCATO	TACGC	09090X	GAAGC	IIIIIII	900999	CGAAGO	CGAAG	GCGCA	GCCTCC	GCATC	CCCTC	GAGAG	0; GAGAG		taxon 568	Loc ualif	0 2000 P 99P CHI, YO	AL CO ITSUAF Ylosox
)GGCCG(	CACCCA CACCCA	CACCAC	CATGGC	CITGC	111111 111111	3066CI	TCAGCC	ICAGC		300000	ATCGAC	ATTTC	Fred. No. 9e- ; Mismatches GAGATTTCCATGTC	ore 1	entifi :32644 3 g	ation/ iers	1709 SHINAC	LTD, K (I MOR (Ydans
CGAGCT	CATGCG CATGCG	CGAAGA	CAGCG	11111 11111	CAACG	CITACO	TGGCG	TGACG	306000 311111	ATCGGC	GGCAG	ATGTO	o. 9e-j ches Arcrcc		1ed" 4" 247 t	√Qualif	932 555 KOID	enichi IGUCHI
GGACGI	CGACG	AGATCA               GATCA	GCGCCA	400900	11111	GITTO	CGCTG	CCCAAG	GGCTTC	GATCT	AACAC AACAC	CAATC	183; O; CCAATC	Ħ	•	Hers.	e, Yosh	TAKEU, KIMIN
GCCGG	AAGGCG	TCGAGG TCGAGG	TCGGC1	I I I I I	GTATG	BAGCGC	IIIIII	ATCTC	CATCGA	GTCGGA IIIII	11111	CGATT	Inde	Leng			!IHIKO	JCHI,Y YASU I DSOXYd
TGGTGAT	AGCACA	TGTGC	ATTICG	GAGGAA             GAGGAA	GIGGG	TTCGC	GCCAA	GCAGGG	CICGCA 11111 705010	11111	100000	CCAGC	ls	lgth 175			HIROS	OSHIN! SOBE ans
78	<b>.</b> .	2GG 660         CGG 660	ACC 600 ACC 600		_					ด – ด		SCCCIIC	0,	œ ···		•	E, PI	10 KOIDE
0 6	õ		8 8	540 540	480	420	360	300 300	240 240	180	120	60				÷	٠.	DE,
							•						0;					
																		•
													<del></del> -					

										ţ					•									_
B 8	g .	0 p .	ov p	Db Db	δδ Φ	8 B	δ 6	. φ	₽	δο B	γΩ	D D	Qy Db	Оy	밁	VΩ	문	δ G	Į į	. p	g	₽ .	Q. <u>U</u>	
	TOP-MANUFACHUSEATCGCGGTCTCGACCTGTCCAAGGCCGAGCTGGGCCAGATCGCC 17	681 TGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	561 CGCTACATGCCCCTCCCTCCGCT			1381 CGCGCCGGCGGCATCCATTCCGTGTACGTCAAC	1321 CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAG 138	1321 CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGA	1261 ACCGCCGCGCTTCGGCCTGGCCGGGCGCGGCTACTTCCGCCGAC 132	1201 TATGCGCGCGCGCTGGGCCTGGCCGCTGGAGACGGCGGTATGG	1201 TATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGCGCGTATGGAAGATGAACATGACCCCCTTGGAGACACGGCGGTATGGAAGATGAACATGAACGCGCGCACTATGGAAGACAGGAAGATGAACAACATGAACAACATGAACAACATGAACAACATGAACAACAACAACATGAACAACAACAACAACAACAACAACAACAACAACAACAAC	1141 CCGCACGACGACGCCCCCCATCCGCGCCTTTTTTTTTTT	1081 GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCC	1081 GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGCTTCTCTCATGATGGAC 108	1021 TCCAAGTACGACGTGGTGCCCGAGCTGCAGCGCGCCATCTACTTCATGATGGAC 108	1021 TCCAAGTACGACGTGGTGCTCCCACCTGGATGAAGTCGCGGCCGAGCGCGGG	9	901 TCCACCATGCTCAAGCAGCACCGCTGCTGCTGGCCGGACGCACCATCATCACCTGGTGC 96 961 AAGCCCTTCCTCGAAATTCACCATCACCTGGTGC 96	901 TCCACCATGCTCAAGCAGGACCGCTGCTGCTGGCCGGACGCACCATCATCACCTGGTGC Q6		TCGAGGCCGCCATGGCGCCAGGACGTCTCGCTCGAGGACGCCTCCCGAGACGCTGCCGCT	781 TCGC		

```
밁
                Ş
                                       망
                                                          δ
                                                                                 밁
                                                                                                  δã
                                                                                                                        밁
                                                                                                                                           Ş
                                                                                                                                                                  밁
                                                                                                                                                                                  γ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                   당
                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E59056
LOCUS
DEFINITION
ACCESSION
VERSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 1758; Conserv
                                                            361
                                        361
                                                                                 301
                                                                                                     301
                                                                                                                        241
                                                                                                                                             241
                                                                                                                                                                  181
                                                                                                                                                                                     181
                                                                                                                                                                                                          121
                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                          TE 1 (bases 1 to 1758)

RS Takeuchi, K., Kolde, Y., Hirose, Y., Moriguchi, M. and Isobe, K.

Transformed microorganism and process for producing D-aminoamylase
AL Patent: JP 2001000185-A 1 09-JAN-2001;

ALCALIgenes xylosoxydans subsp. xylosoxydans
PN JP 2001000185-A/1

PF 17-JUN-1999 JP 1999170555

PF 17-JUN-1999 JP 1999170555

PF KENICHI TAKEUCHI, YOSHINAO KOIDE, YOSHIHIKO HIROSE, PI
MITSUAKI MORIGICHI,
PI KIMIYASU ISOBE
PC C12N15/09,C12N1/21,C12N9/80//(C12N15/09,C12R1:05), CC

CC C12N15/00,(C12N15/00,C12R1:05)

PC C12N15/00,(C12N15/00,C12R1:05)

PG C12N15/00,(C12N15/00,C12R1:05)

FH Key Location/Qualifiers
FT source //Organism-/Alcaligenes xylosoxydans subsp. FT
                               CCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGAC
                                                                        ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCG
  TACCTGGACGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transformed microorganism
                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                   /organisn='Alcaligenes
xylosoxydans'.
Location/Qualifiers
1. 1758
                                                                                                                                                                                                                                                                                                                                                                                  /organism="unidentified"
/db_xref="taxon:32644"
.662 c 568 g 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:18629918
                                                                                                                                                                                                                                                                                                                             100.0%; Score 1758; DB 6
100.0%; Pred. No. 9e-183;
tive 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1758 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                    247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pp DNA linear PAT 31-JAN-2002
process for producing D-aminoamylase.
                                                                                                                                                                                                                                                                                                                                                                                    ct
                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                 1758;
                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                           Gaps
            480
                                420
                                                     420
                                                                        360
                                                                                             360
                                                                                                                  300
                                                                                                                                    300
                                                                                                                                                                                                                      180
                                                                                                                                                          240
                                                                                                                                                                              240
                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                            0,
```

```
S
                  밁
                              δÃ
                                               밁
                                                           õ
                                                                          뭐
                                                                                                      밁
                                                                                                                  ş
                                                                                                                                  밁
                                                                                                                                              Ş
                                                                                                                                                             밁
                                                                                                                                                                                                      Š
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                Ñ
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
    1561
                  1501
                                              1441
                                                            1441
                                                                          1381
                                                                                       1381
                                                                                                     1321
                                                                                                                   1321
                                                                                                                                 1261
                                                                                                                                               1261
                                                                                                                                                             1201
                                                                                                                                                                           1201
                                                                                                                                                                                         1141
                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
CGCTACATGGCCCCTCCCTCCGCCAATACGGCCCCACCCGATATCGTGGGCAAGGAA
             CCCTTACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCTCCCAACCCTGGACGCAAAC
                                         CGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCCGCCGGTCTGGCAAGAGCAGGCG
                                                                            CGCGCCGCCGCCATTCCGTGTACGTCAACGGCGCGCCCGGTCTGGCAAGAGCAGGCG 1440
                                                                                                CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAG
                                                                                                                                                                                    CCGCACGACGACGCCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGGTGCTGGGGCAC
                                                                                                                            ACCGCCGCGCGTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGAC
                                                                                                                                                        TCCAAGTACGACGTGGTGCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGAC
                                                                                                                                                                                                                                                                        AAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGGCCGAGCGCGGCAAA 1020
                                                                                                                                                                                                                                                                                                   TCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGC
                                                                                                                                                                                                                                                                                                                                        ATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                           CCGCTGAGCGCGATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGCACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGCCTTCTACCCGCCGCCGCCGCGCGCGACCACCGAAGAGATCATCGAGGTGTGCCGG
                                                                                                                                                                                                                                                                                                                                ATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAAGGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.560
                           1560
                                          1500
                                                        1500
                                                                     1440
                                                                                                  1380
                                                                                                               1380
                                                                                                                             1320
                                                                                                                                           1320
                                                                                                                                                         1260
                                                                                                                                                                      1260
                                                                                                                                                                                                  1200
                                                                                                                                                                                    1200
                                                                                                                                                                                                                1140
                                                                                                                                                                                                                              1140
                                                                                                                                                                                                                                            1080
                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
```

1620

```
Ş
                     밁
                                   Ş
                                                 Query Match

Best Local Similarity

Matches 1758; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                           Sequence 1758 BP; 281 A; 662 C; 568 G; 247 T; 0 other;
                                                                                                                source
                                                                                                                                                Takeuch1 K., Kolde Y., Hirose Y., Moriguchi M., Isobe K.; "Transformant microorganism and process for producing D-aminoacylase"; Patent number JP03074339-T/1, 12-JAN-2001.
AMANO PHARMACEUTICAL CO LTD.
                                                                                                                                                                                                                                                                                                                   unidentified unclassified.
                                                                                                                                                                                                                                                                                                                                          JP 03074329-T/1.
                                                                                                                                                                                                                                                                                                                                                  Transformant microorganism and process for producing D-aminoacylase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-FEB-2002
08-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1681
                                                                                                                                                                                                                                                                                                                                                                                               BD004254.1
                                                                                                                                                                                                                                                                                                                                                                                                             BD004254;
                                                                                                                                                                                                                                                                                                                                                                                                                            BD004254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1561
-1758
              source
                                                                                                                                                                     кеу
                                                                                                                                                                                 C12N1/21, C12N15/52, C12N9/80
                                                                                                                                                                                             15-JUN-2000 JF 2000003932
17-JUN-1999 JF 99P 170555
KENICHI TAKEUCHI, YOSHINAO KOIDE, YOSHIHIKO HIROSE,
MITSUAKI MORIGUCHI,
                                                                                                                                                                                                                                 Alcaligenes xylosoxydans subsp. xylosoxydans
JP 03074329-T/1
12-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGCAGGCCAGCGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCC 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 1758; DB 23; Length 1758; ilarity 100.0%; Pred. No. 9e-183; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                         standard; DNA; UNC; 1758 BP.
                                                                                                                                                                                                                                                                                                                                                                       (Rel.
                                                                                             /db_xref="taxon:32644"
/organism="unidentified"
                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                      70,
                                                                                                                                                           Location/Qualifiers
1. .1758
                                                                                                                                           /organism="Alcaligenes xylosoxydans subsp.
xylosoxydans"
                                                                                                                                                                                                                                                                                                                                                                   Created)
Last updated, Version 1)
                                          . .0
                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1620
                                             0
```

```
REFERENCE
AUTHORS
                                                 FEATURES
                                                                                                                                                                                                       KEYWORDS
SOURCE
                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                        RESULT
S80683
                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                            JOURNAL
MEDLINE
PUBMED
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                      TITLE
                                                                                                                                                                                             ORGANISM
          gene
                                                                                                                                                                                                                                                                                                                                 1741
                                                                                                                                                                                                                                                                                                                1741
                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                      1681
                                                                                                                                                                                                                                                                                                                                                                                         1621
                                                                                                                                                                                                                                                                                                                                                                                                           1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1501
                                                                                                                                                                                                                                                                                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                     CTGAGCTACGAGAAGCTT 1758
                                                                                                                                                                                                                                                                                                                                                                                GTGATGGGCGCGCCCTGCGCGCCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTG
                                                                                                                                                                                                                                                                                                                                                      TCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAĞATCGCC 1740
                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAA 1620
                                                                                                                                                                                                                                                                                                                                            TCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGCCGCCGGCATTCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTG 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCACCGGCCAGCATGCCGGCCGCCGTGCTCGCACGCCACGGCCCTGAGCCCGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGGGAGCTGCAGGCCGGGTACTTCGCCGAC 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCAC
                                                                                                                                                                                                                              S80683
dan-D-aminoacylase [Alcaligenes A-6, Genomic, 1980 nt]
                                    GenBank staff at the National Library of Medicine created this entry (NCBI gibbsq 174864) from the original journal article. This sequence comes from Fig. 3.

Location/Qualifiers

1. .1980
                                                                                      Alcaligenes xylosoxydans subsp. xylosoxydans the gene in Escherichia coli Biosci. Biotechnol. Biochem. 59 (11), 2115-21 96100942
                                                                                                                            Cloning and sequencing of a gene encoding D-aminoacylase from
                                                                                                                                            Wakayama, M., Katsuno, Y., Hayashi, S., Moriguchi, M.
                                                                                                                                                                  Achromobacter.
Y (bases 1 to
                                                                                                                                                                             Bacteria; Proteobacteria; beta subdivision;
                                                                                                                                                                                          Achromobacter xylosoxidans A-6 Achromobacter xylosoxidans
                                                                                                                                                              (bases 1 to 1980)
        /organism...achromobacter
/db_xref...acon:85698...
201. 1655
                                                                                                                                                                                                                        GI:1488356
                                                                                                                                                                                                                                                                                      Hindry
                                                                                                                                                                                                 ssp.
                                                                                                                                                                                                                                                xylosoxydans,
                          xylosoxidans"
                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                 xylosoxydans
                                                                                                                                              Miyamoto, Y., Sakai, K. and
                                                                                                  2115-2119
                                                                                                                                                                                                                                               linear
ns, ssp.
                                                                                                                                                                            Alcaligenaceae;
                                                                                                                   A-6 and expression
                                                                                                 (1995)
                                                                                                                                                                                                                                               xylosoxydans,
                                                                                                                                                                                                                                                         BCT 13-AUG-1996
                                                                                                                                                                                                                                                                                                                                             1740
                                                                                                                                                                                                                                                                                                                                                                                  1680
                                                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1200
                                                                                                                    e
E
Ş
                    맑
                                    δÃ
                                                        묫
                                                                         Ş
                                                                                              밁
                                                                                                              δÃ
                                                                                                                                    밁
                                                                                                                                                     ğ
                                                                                                                                                                          g
                                                                                                                                                                                        νŞ
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TO DE
                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Si
Matches 1746;
 661
                   768
                                      601
                                                         708
                                                                           541
                                                                                              648
                                                                                                                481
                                                                                                                                    588
                                                                                                                                                       421
                                                                                                                                                                         528
                                                                                                                                                                                            361
                                                                                                                                                                                                                468
                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                       408
                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                          168
                                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                                                                                                                                                        61
```

```
241 CACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGAGCGCGCATGGCGGCATCTACGCCCACCCACATGCGCGACGACGAGGGCGAGCACATC
                                                                                           GCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACC
                                    GGCGCCTTCTACCCGCCGCCGCCGCCGCGCGCACCGAAGAGATCATCGAGGTGTGCCGG
                                                                                                                                                 TACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                                                                                                                                                              ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCG
                                                                                                                                                                                                                                                                                                                                                                              CACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /Translation-"MSOSSQPFDLLLAGGTLIDGSNTPGRRADIGVRGDRIAAIGDL
SDAAAHTEVDVSCLVVARGFIDSHTHDDNYLLRRRDMTPKISQGVTTVVTGNGGISLA
PLAHANPPAPUDLLDEGGSYFERFADYIDALRATPAAVNAACMYGHSTLRAAVNPDL
QRAATDEEIAAMSDLAEERAMASGAIGISTGAFYPPARARTTEEIIEVCRPLSAHGGIY
ATHMRDEGEHIVAALEETFRIGRELDVFVVISHKYNGQPNFGRSRETLPLLEAAMAGIY
AUSLDAYFYVAGSTMLKODRVLLAGRRIITWCKPFPELSGRDLDEVAAERGKSKYDV
VPELQPAGAITFMUMDEPDVQRILAFGPTMIGSDGLPHDERPHRLWGTFPRVLGHYAR
DIGLEPLETAVNKNTGLTAARFGLAGRGOLDAGYFADLVVFDPATVADTATFEHPTER
DIGLEPLETAVNKNTGLTAARFGLAGRGOLDAGYFADLVVFDPATVADTATFEHPTER
AAGIHSYVVNGAPVWQEQAFTGQHAGRVLARTAA"

8 758 c 642 g 282 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="3.5.1.14; Method: conceptual translation partial peptide sequencing; This sequence comes 3; N-acyl-D-amino acid amidohydrolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="D-aminoacylase"
/protein_id="AAB35881.1"
/db_xref="GI:1488357"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="D-aminoacylase, N-acyl-D-amino acid 201. .1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene-"dan"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1739.4; DB 1;
Pred. No. 9.1e-181;
0; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1980;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amidohydrolase*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       with
from
                                                                660
                                       827
                                                                                                                       600
           720
                                                                                            767
                                                                                                                                                 707
                                                                                                                                                                            540
                                                                                                                                                                                                         647
                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                               587
                                                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                              467
                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fig.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
1908
                                                              1681 TCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCC
                                                                                                                       1621
                                                                                                                                                             1561
                                                                                                     1788
                                                                                                                                                                               1668
                                                                                                                                                                                                                   1608
                                                                                                                                                                                                                                      1441
                                                                                                                                                                                                                                                         1548
                                                                                                                                                                                                                                                                            1381
                                                                                                                                                                                                                                                                                                1488
                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                    1428
                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                          1368
                                                                                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                                                                                                                                                                                                                               1308
                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      841: ATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781 TCGCACCACGAGGTCATGGGCCAAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTG 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 948 TOGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  888
                     CTGAGCTACGAGAAGTT 1924
                                 CTGAGCTACGAGAAGCTT1757
                                                                                                                             TCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCC
                                                                                         GTGATGGGCGCGCGCGCGGGGCGCGAAGGCCCGGAAAATGACCCTGCAAGACCTG
                                                                                                   GTGATGGGCGCGCGCGTGCGGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTG
                                                                                                                                                                    CCCTTACAATCCGGCGTGAACGGGGCGGGCGTGCCGCCCCTCCCAACCCTGGACGCAAAC
                                                                                                                                                                              CGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGGCGGTCTGGCAAGAGCAGGCG
                                                                                                                                                                                                         CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAG
                                                                                                                                                                                                                                                                                                                        GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGACCGCTG
                                                                                                                                                                                                                                                                                                                                                             TATECGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTG 1260
                                                                                                                                                                                                                                                                                                                                                                                                             CCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                  CCGCACGACGACCCCCCATCCCCCGCGCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCAC 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCACCATGCTCAAGGAGGACGGGTGCTGGTGGCGGGACGCACCATCATCACCTGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCGAGGCCGCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCTGAGCGCGCATGGCGCATCTACGCCCACATGCGCGACGAAGGCGAGCACATC
                                  thind !!
                                                    1907
                                                                        1740
                                                                                                            1680
                                                                                          1847
                                                                                                                                                                    1727
                                                                                                                                                                                      1560
                                                                                                                                                                                                        1667
                                                                                                                                                                                                                           1500
                                                                                                                                                                                                                                                               1440
                                                                                                                                                                                                                                              1607
                                                                                                                                                                                                                                                                                    1547
                                                                                                                                                                                                                                                                                                      1380
                                                                                                                                                                                                                                                                                                                                                              1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1080
                                                                                                                                                                                                                                                                                                                                                                                                                      1200
                                                                                                                                                                                                                                                                                                                                                                                                                                         1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            887
                    Ş
                                       B
                                                         Ş
                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
AFANADA
                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                    source
94 GGCAGCAACACCCCGGGGCGGCGCGCGCCGACCCTGGGCGTGCGCGGCGACCGGCATCGCCGCC
                           6100942
                                                                                                                        222
```

용

밁 Ś

Š 명 Ş 문 Ş

밁

153

S 밁

Š

```
Query Match 82.7%;
Best Local Similarity 99.9%;
Matches 1454; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (13-FEB-1995) Mamoru Wakayama, Oita University, Chemistry; Dannoharu, Oita, Oita 870-11, Japan (Tel:0975-69-3311(ex.746), Fax:0975-69-7957)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cloning and sequencing of a gene encoding D-aminoacylase from Alcaligenes xylosoxydans subsp. xylosoxydans A-6 and expression the gene in Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Primary structure of N-acyl-D-glutamate amid
Alcaligenes xylosoxydans subsp. xylosoxydans
J. Blochem. 118.(1), 204-209 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wakayama, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Inpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vakayama, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wakayama, M., Katsuno, Y., Hayashi, S., Miyamoto, Y., Sakai, K. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wakayama, M., Ashika, T., Miyamoto, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-acyl-D-amino acid amidohydrolase.
Alcaligenes xylosoxidans (sub_species:xylosoxydans,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AFANADA 1455 bp DNA linear I Alcaligenes xylosoxidans DNA for N-acyl-D-amino acid amidohydrolase, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sakai, K. and Moriguchi, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria; beta subdivision; Alcaligenaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Achromobacter xylosoxidans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 1455)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 1455)
                                                                                                                                                                                                                                                               /transl_table=11
/product="N-acyl-D-amino acid amidohydrolase"
/protein_id="pane0349,1"
/protein_id="pane0349,1"
/protein_id="pane0349,1"
/db_xref="GI:1881397
/translation="MSQSDSQPFDLLLAGGTLIDGSNTPGRRADLGVRGDRIAAIGDL'
/translation="MSQSDSQPFDLLLAGGTLIDGSNTPGRRADLGVRGDRIAAIGDL
/translation="MSQSDSQPFDLLLAGGTLIDGSNTPGRRADLGVRGDRIAAIGDL
SDAAAHTRVDSGLVYAPGFIDSHTHDDNYLLRARDTPAAVNAACMVGHSTLRAAVAPDL
SDAAAHTRVDSGLVAPGGSYRFERFADYLDALRATPAAVNAACMVGHSTLRAAVAPDL
PLAHANPPAPLDLLDEGGSYRFERFADYLDALRATPAAVNAACMVGHSTLRAAVAR
ORAATDEGIAAMARTGELDVPVVISHKVNGQPNFGRSRSTELLEAAMAR
ORAATDEGIAAMARTGERELDVPVVISHKVNGQPNFGRSRSTELLEAAMAR
                                                                                                                                                  AAGIHSYYVNGAPVWQEQAFTGQHAGRVLARTAA"
552 c 477 g 204 t
                                                                                                                                                                                          VPELQPAGATYFMMDEPDVQRTLAFGPTMTGSDGLPHDERPHPRLMGTFPRVLGHYAR
DLGLFPLETAVWKMTGLTAARFGLAGRGQLQAGYFADLVVFDPATVADTATFEHPTER
                                                                                                                                                                                                                    QDVSLDAYPYYAGSTMLKQDRVLLAGRTIITWCKPFPELSGRDLDEVAAERGKSKYDV
VPELQPAGAIYFMMDEPDVQRILAFGPTMIGSDGLPHDERPHPRLWGTFPRVLGHYAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biotechnol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /sub_species="xylosoxydans"
/db_xref="taxon:85698"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism-"Achromobacter xylosoxidans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'isolate-"A-6"
                      0
           Score 1453.4; DB 1;
Pred. No. 1.3e-149;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. 59 (11), 2115-2119 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yoshikawa, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amidohydrolase from
ydans A-6
                                                            Length
        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  isolate:A-6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCT 10-FEB-1999
Gaps
     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ဝှု
```

```
밁
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                닭
                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                1174
                                                   1021
                                                               1054
                                                                           961
                                                                                                  901
                                                                                      994
                                                                                                             934
                                                                                                                         841
                                                                                                                                     874
                                                                                                                                                 781
                                                                                                                                                             814
                                                                                                                                                                         721
                                                                                                                                                                                    754
                                                                                                                                                                                                661
                                                                                                                                                                                                           694
                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                  634
                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                        574
                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                 514
                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                        454
                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                               394
                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                       334
                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                              274
                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                      214
                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                             154
                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                      CCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCTGTGG
                                              GATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCG
                                                                                            GGCACCTTCCCGCGGGTGCTGGGGCACTATGCGGGGGACCTGGGCCTGTTCCCGGCTGGAG
                                                                                                                                           CGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTC
                                                                                                                                                                                          GCCAGCGGCCATCGGCATTICGACCGGCGCTTCTACCCGCCCGCCGCCGCCGCCACC
                                                                                                                                                                                                                                                               CAGCGCGCCCACCGACGAAGGAAATCGCGGCCATGCGGGAACCTGGCCGAGGAAGCCATG
                                                                                                                                                                                                                        ACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCCGCGTTCTACGCCACC
                                                                                                                                                                                                                                                                                       CAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGACGAAGCCATG
                                                                                                                                                                                                                                                                                                                                      CTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGC 393
                                                                                                                                                                                                                                                                                                                                                             ATGACGCCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGC
                                                                                                                                                                                                                                                                                                               ATCGGCGATCTGTCGGACGCCGCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                    1053
            1233
                                  1173
1200
                       1140
                                              1080
                                                          1113
                                                                      1020
                                                                                             960
                                                                                                         993
                                                                                                                     900
                                                                                                                                933
                                                                                                                                            840
                                                                                                                                                        873
                                                                                                                                                                    780
                                                                                                                                                                               813
                                                                                                                                                                                          720
                                                                                                                                                                                                      753
                                                                                                                                                                                                                  660
                                                                                                                                                                                                                             693
                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                    633
                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                           573
                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                  513
                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                          453
                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                 273
                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                       213
                                                                                                                                                                                                                                                                                                                                                                                                                                    120
```

Š

밁 Ş 문 á 밁 Š 밁 Š 밁 S 문 δÃ 밁 Š 8 Š 문 Š 밁 Š 밁 δÃ 문 δÃ

Š

34

ATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGCGCACCCTCATCGAC 93

Indels

, .

Gaps

0

Length

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
Source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 6
AF332548
LOCUS
 Ouery Match 61.9%;
Best Local Similarity 84.3%;
Matches 1226; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCGCCACCTTCGAACACCCTACCGAGCGCGCGCCGGCATCCATTCCGTGTACGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCACGCCCGCCTGA 1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCACGGCCGCCTGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (28-DEC-2000) Institute of Biochemistry, National Submitted (78-DEC-2000) Institute of Biochemistry, National Yang-Ming University, 115, Li-Nong St. Sec. 2, Shih-Pai, Ta Taiwan 11221, R.O. China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alcaligenes faecalis,
Alcaligenes faecalis
Bacteria, Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 1455)
Hsu,C.S., Lai,W.L., Chang,
Gene cloning, nucleotide ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D-aminoacylase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF332548 1455 bp T
Alcaligenes faecalis D-aminoacylase
AF332548
AF332548.1 GI:13194735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hsu, C.S., Lai, W.L., Chang, W.W., Yang, Y.B. and Tsai, Y.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alcaligenes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 1455)
                                                                       /translation="MoophatpedyIlsggtvidgtnapgrladygyrgdriaavgdl

AASSARRIDVAGKYVSPGFIDSHTHDDNYLLKHRDMTPKISQGVTTVVTGNCGISLA

PLAHANPPAPLDLDEGGSFRFARFSDYLEALRAAPPAVNAACMYGHSTLRAAVMPDL

REATADEIGAMQALADDALASGAIGISTGAFYPPAAHASTEEIIEVCRPLITHGGYV

ATHMRDEGEHIVQALEETFRIGKELDVEVVISHKYWGKLNFGRSKETLALIEAAMAS

20VSLDAYPYNAGSTMLKQDRYLLAGRTLITWCKFYPELSGRDLEEIAAERGKSKYDV

VPELQPAGAIYFMADEPDVQRILAFGFIMIGSDGLPHDERPHFRLWGTFPRYLGHYSK

VPELQPAGAIYFMADEPDVQRILAFGFYMIGSDGLPHDERPHFRLWGTFPRYLGHYSK

DLGLFPLETAVWKNTGLTAAKFGLAERGQVQPGYYADLVVFDPATVADSATFEHPTER

AAGIHSVYVNGAAVWEDQSFTGOHAGRYLNRAGA"

225 t
                                                                                                                                                                                                                                /product="D-aminoacylase"
/protein_id="AAK15530.1"
/db_xref="GI:13194736"
                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                         /organism="Alcaligenes
/db_xref="taxon:511"
                                                                                                                                                                                                                                                                                                               'note-"DaaAF"
                                                                                                                                                                                                                                                                                                                            EC_number="3.5.1.81"
                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gİ:13194735
Score 1088.6; DB 1;
Pred. No. 6.6e-110;
0; M1smatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J.W.W., Yang, Y.B. and Tsai, Y.C.
sequencing of Alcaligenes faec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    beta subdivision; Alcaligenaceae;
                                                                                                                                                                                                                                                                                                                                                                           faecalis*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           faecalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1260
```

```
밁
                                                Ş
                                                           밁
                                                                   Š
                                                                              용
                                                                                       S
                                                                                                  B
                                                                                                         Ş
                                                                                                                    밁
                                                                                                                             S
                                                                                                                                       밁
                                                                                                                                                Ş
                                                                                                                                                           밁
                                                                                                                                                                   ş
                                                                                                                                                                              밁
                                                                                                                                                                                       Ş
                                                                                                                                                                                                밁
                                                                                                                                                                                                         S
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                          ģ
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                         밁
           1114
                               1054
                                       961
                                                           901
                                                                    934
                                                                                                 781
                                                                                                          814
                                                                                                                    721
                                                                                                                             754
                                                                                                                                       199
                                                                                                                                                 694
                                                                                                                                                           601
                                                                                                                                                                   634
                                                                                                                                                                             541
                                                                                                                                                                                       574
                                                                                                                                                                                                481
                                                                                                                                                                                                         514
                                                                                                                                                                                                                   421
                                                                                                                                                                                                                            454
                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                394
                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                  334
                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                               214 GCGCCCGGCTTCATCGACTCGCACGACCACCACGACGACGACTACCTGCTCAGGCGTCGCGAC
                                                                                                                                                                                                                                                                                      274
                                                                                                                                                                                                                                                                                                                   121
CCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCTGTGG
               GAAGAATCGCCGCGAGCGAGGCAAGTCCAAGTACGACGTGGTGCCCGAACTGCAGCCC 1020
                                       GATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCTGCCGAGCTGCAGCCG
                                                     61
                                                                                                                                                                                                                                                                                                                                               94
                                                                        CGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTC
                                                                                                                                 GGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCG
                                                                                                                                                    GCCAGCGGCGCATCGGCATTTCGACCGGCGCTTCTACCCGCCGCCGCCGCCGCGCCACC
                                                                                                                                                                                          TCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCC
                                                                                                                                                                                                                                                   TCTCCGGGCTTCATCGACTCGCACACGCATGACGACAACTACCTGCTGAAACACCGCGAC
                                                                                                                                                                                                                                                                                                             GTCGGCGACCTGAGCGCCAGCAGCGCGCCGCCGGCGCATCGACGTGGCGGGAAAAGTGGTG
                                                                                                                                                                                                                                                                                                                                900
                                                                                   933
                                                                                            840
                                                                                                     873
                                                                                                               780
                                                                                                                                  720
                                                                                                                                                              693
                                                                                                                                                     660
                                                                                                                                                                                                                      513
                                                                                                                                                                        600
                                                                                                                                                                                 633
                                                                                                                                                                                           540
                                                                                                                                                                                                     573
                                                                                                                                                                                                              480
                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                          453
                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                             393
                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                    273
                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                    60
```

Ş 밁 Ş

```
JOURNAL
REFERENCE
AUTHORS
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
PÜBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 7
AFAA61
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                               Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCACGGCCGCCTGA 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (13-FEB-1995) Mamoru Wakayama, Oita University, Applied Chemistry; Dannoharu, Oita, Oita 870-11, Japan (Tel:0975-69-3311(ex.746), Fax:0975-69-7957)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGCCGGAGCCTGA 1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCGCCACCTTCGAACACCCTACCGAGCGCGCGCCGGCATCCATTCCGTGTACGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wakayama, M., Watanabe, E., Takenaka, Y., Miyamo Sakai, K. and Moriguchi, M.
Cloning, expression, and nucleotide sequence N-acyl-D-aspartate amidohydrolase gene from A xylosoxydans subsp. xylosoxydans A-6
J. Ferment. Bloeng. 80, 311-317 (1995)
3 (bases 1 to 1497)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAACGTTTCCCCGGGTGCTGGGCCACTACTCGCGCGACCTGGGCCTGTTCCCATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCACCATGATCGGGTCCGATGGCCTGCCCCACGACGAGCGCCCCCACCCTCGCCTGTGG
                                                                                                                                                                                                                                                                                                                              Wakayama,M., Ashika,T., Miyamoto,Y., Yoshikawa,T., Sonoda,Y
Sakai,K. and Moriguchi,M.
Primary Structure of N-acyl-D-glutamate amidohydrolase from
Alcaligenes xylosoxydans subsp. xylosoxydans A-6
J. Blochem. 118 (1), 204-209 (1995)
                                                                                                                                                                                                    Wakayama,M.
                                                                                                                                                                                                                                                                                                                          J. Biochem.
96015170
                                                                                                                                                                                                                                                                                                                                                                                                                      Achromobacter xylosoxidans
Bacteria; Proteobacteria; !
                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-acyl-D-amino acid amidohydrolase.
Alcaligenes xylosoxydans (sub_species:xylosoxydans,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AFAA61
Alcaligenes xylosoxydans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D45919.1 GI:1136626
                                                                                                                                                                                                                                                                                                                                                                                                             Achromobacter.
                                                                                                                                                                          (bases 1 to 1497)
                                                                                                                                                                                                                                                                                                   (sites)
                                                                                                                                                                                                                                                                                                                                                                                                   (sites)
                                   /sub_species="xylosoxydans"
/db_xref="taxon:85698"
/codon_start=1
/transl_table=11
                                                              /organism="Achromobacter
/isolate="A-6"
                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1497
s DNA
s cds.
                                                                                                                                                                                                                                                                                                                                                                                                                 beta subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                      xylosoxidans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA line
N-acyl-D-amino
                                                                                                                                                                                                                                                                              Miyamoto, Y.,
                                                                                                                                                                                                                                           Alcaligenes
                                                                                                                                                                                                                                                                                                                                                                                                                Alcaligenaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    isolate:A-6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1233
```

BASE

```
ORIGIN .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 988;
                          822
                                                        747
                                                                                    762
                                                                                                                   687
                                                                                                                                               702
                                                                                                                                                                             627
                                                                                                                                                                                                       645
                                                                                                                                                                                                                                       567
                                                                                                                                                                                                                                                                   585
                                                                                                                                                                                                                                                                                                507
                                                                                                                                                                                                                                                                                                                             525
                                                                                                                                                                                                                                                                                                                                                          447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               327
                                                                                                                                                                                                                                                                                                                                                                                        465
                                                                                                                                                                                                                                                                                                                                                                                                                      387
                                                                                                                                                                                                                                                                                                                                                                                                                                                   405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                CATCGAGGTGTGCCGGCCGCTGAGGCGCGCATGGCGGC---ATCTACGCCACCCACATGCG
GCGCGAGACGCTGCCGCTGATCGAGGCCGCCAGGACGTCTCGCTGGACGC
                                             GGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTTCGGCCGCTC
                                                                                                       CGACGAGGCCGACCATCGTGCCGGCCATGGAAGAGGCCCTGCTGATCGGCCGCGAACT
                                                                                                                     CGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCT
                                                                                                                                                                                                                                           CATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCGCCACCACCAAGAGAGT
                                                                                                                                                                                                                                                                                      CTTCGGCGTCTCCACCGGCACCTTCTACCCGCCCGCCAGCGCCCGCGCCCACCGACGAGAT
                                                                                                                                                                                                                                                                                                               CACCGACGAGGAAATCGCGGCCATGCGGGAACCTGGCCGAGGAAGCCATGGCCAGCGGCGC
                                                                                                                                                                                                                                                                                                                                               CTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                         CGCCACCTTCCGCGACTGGCTGGCGGGCCCTTGCCGAAACGCCGCCGCCGTCAACGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                       CGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCGGTCAACGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCGCGGCGGCAGATCCCGCAGCCGCTCGACCTGCTGGGCCCGGCCCGAGCTGTTCCGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGCACGCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGGGGCTCTTAACGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCGACTCGCACACGACGACGACGGCTACCTGCTGCGCGCATCCCGAGATGCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACACTGACGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCCATGCGCCCGGCGTGCCGGTGATCGATGCCCGCGGCCTGGCGCTGGCGCCCCGGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCGGACGCCGCGCACACCCGGGTCGACGTGCTGGGGCCTGGTGGTCGCGCCCGGCTT 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCCCCCAGGGCGACCTGGCGGTGCGCGGGGGGGGCGATCGTGGCGGTGGGCGACTT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGGGGCGCGCCCGACCTGGGCGTGCGCGGCGACCGCCATCGCCGCCATCGCCGATCT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="N-acyl-D-amino acid amidohydrolase"
/protein_id="BAA08350.1"
/db_xuef="0:180011"
/translation="MTDRSTLDDAPAQADFIIAGATLIDGGGGPARQGDLAVRGGRIV
ALGDERHAPGVEVIDARGLALAFEIDSHTHDDGYLLAHEBEMLERVSQGITTVVTGNC
GISLAPLSERRQIPPDDLULGPELFERFITENDHTALAETPAAVAVIPLVGHTTLXVA
VMDDTGRAATDAERAAMRALLDEALQACAFGVSTGTFYEPASAAPTDEIIDVCOPLRG
RAGAIYATHLROEADHIVEAMEEALLIGRELDCRVVFSHKLAGERNHGRSRETLDMI
SRAAATQRVCLDCHYPFATSTMLRLDBARALASTTLITMSKGYPEATGADFGVGTETUMI
SRAAATQRVCLDCHYPFATSTMLRLDBARALASTTLITMSKGYPEATGADFGVGTETNV
LRTMVREQRLLSLETALHKMTGLAAAQTGLTERGLLRQGYHADLVLFDPANVTDTATF
SAPIOVSGGHAVWYGRQVWDGERTGAERPGQVLAPGDAIPMSQQSE"
35 a 592 c 467 g 203 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 693.6; DB 1;
Pred. No. 6.3e-67;
0; Mismatches 469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1497;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                 881
                                              806
                                                                            821
                                                                                                                                    761
                                                                                                                                                                  989
                                                                                                                                                                                              701
                                                                                                                                                                                                                          626
                                                                                                                                                                                                                                                        644
                                                                                                                                                                                                                                                                                      566
                                                                                                                                                                                                                                                                                                                  584
                                                                                                                                                                                                                                                                                                                                               506
                                                                                                                                                                                                                                                                                                                                                                             524
                                                                                                                                                                                                                                                                                                                                                                                                           446
                                                                                                                                                                                                                                                                                                                                                                                                                                        464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
```

8

S 밁 Ş 밁 Ş 밁 Ş

Ş 밁 Š

밁 Š 밁 Ş В δ

Ş 문

밁 Š

δÃ 밁

밁 δÃ В Š

```
TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                              RESULT 8
AL646083
LOCUS
                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                    1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              807
                                                                                                                                                                                                                                                                                                                                                                                              TGCAATACCTTGGAGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                           CGCCTGAGCCCGGCGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCTGGGATGGGGAACGGCCGGGCCGAACGCCCGGGCCAGGTACTGGCACCCGGTGA 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTCGAACACCCTACCGAGCGCGCGCGGCATCCATTCCGTGTACGTCAACGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGGGGTATCATGCTGACCTGGTGCTGTTCGATCCCGCCAACGTCACAGACACACGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACAAGATGACCGGCCTGGCGGCGGCCCAATACGGCCTGACCGAGCGCGGCCTGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCAACGTGCTGCGCACCATGGTGCGCGAACAACGGCTGCTGTCGCTGGAAACCGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCCTGTGGGGGCACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGAAGATGACCGGCCTGACCGCCGCGCGTCGCCTGGCCGGGCGCGGGCAGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGCGGGTGCTGGGGCACTATGCCGCGCGACCCTGGTGCCTGTTCCCGCTGGAGACGGCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATCTACTTCATGATGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCGGCTCGGACGGCCTTCGACCCGCACCCGCACCCGCACCCGCAGTGGGGCACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATCTACTTCCTGATGGACCAGGCCGACGTCAACCGCATCTTCAGCCATCCGCTGACCAC
                                                                      l (bases 1 to 208050)

Salamoubat.M., Genin,S., Artiguenave,F., Gouzy,J., Mangenot,S., Arlat,M., Billault,A., Brottler,P., Camus,J.C., Cattolico,L., Chandler,M., Choisane,N., Claudel-Renard,C., Cunnac,S., Demange,N., Gaspin,C., Lavie,M., Molsan,A., Robert,C., Saurin,M., Schlex,T., Signier,P., Thebault,P., Whalen,M., Wincker,P., Levy,M., Weissenbach,J. and Boucher,C.A.
Genome sequence of the plant pathogen Ralstonia solanacearum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCCTGATCACCTGGTCCAAGGGCTACCCGGAGGCCACCGGCGGCGACTTCAGCGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCGAAAACGCTGGACATGATCAGCCGCGCGCGCCGCCACGCAGCGCGTCTGCCTCGACTG
    Direct Submission Submitted (05-DEC Cremieux, CP5706,
                                               Boucher, C.A.
                                                                                                                                                                                                         Ralstonia solanacearum
Ralstonia solanacearum
Bacteria; Proteobacteria; beta subdivision;
                                                                                                                                                                                                                                                                    segment 8/11.
AL646083 AL646053
AL646083.1 GI:17
                                                                                                                                                                                                                                                                                                        AL646083 208050 bp
Ralstonia solanacearum GMI1000 m
                                                                                                                                                                                                   Ralstonia.
                                                            (bases
     (05-DEC-2001)
CP5706, 91057
                                                            <u>ს</u>
                                                                                                                                                                                                                                                                    GI:17431588
                                                         208050)
                                                                                                                                                                                                                                                                                                                                                                                               1486
                                                                                                                                                                                                                                                                                                                                                                                                                         1501
 Genoscope and CNRS
Evry Cedex, France,
                                                                                                                                                                                                                                                                                                          megaplasmid,
 UMR-8030, 2 ;
Laboratoire
                                                                                                                                                                                                            Ralstonia
                                                                                                                                                                                                                                                                                                          complete
                                                                                                                                                                                                                                                                                                                    BCT 07-DEC-2001
                                                                                                                                                                                                          group
 rue
e de
Gaston
Biologie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                926
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
            Sg
                                                                                 gene
                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             http://sequence.toulouse.inra.fr/R.solanacearum.html.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Christian.Boucher@toulouse.inra.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      URGY, 2 rue Gaston Cremieux, CP5706, 91057 Evry Cedex, France,
Laboratoire de Biometrie et Intelligence Artificielle INRA, BP27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dausset-CEPH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Moleculaire des Interactions Plantes-Microorganismes INRA-CNRS, BP27, 31326 Castanet-Tolosan Cedex, France, Fondation Jean
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sset-CEPH, 27 rue Juliette Dodu, 75010 Paris,
Route de Narbonne, F 31062 Toulouse Cedex 4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP27, F31326 Castanet-Tolosan Cedex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Castanet-Tolosan Cedex.
                                                               /evidence=not_experimental complement(2462. .3139)
                                                                                                                                                                                       SFATTADDVDNLLRHMKAAAAGPSADTHATA"
complement(2462. .3139)
                                                                                                                     /note="ACUR or RS05503
predicted by FrameD"
                                                                                                                                                                                                    VVAAEAIVLFDLSLAAEMGYRRKRAGHLFSKMRFLSAOIEAYLANDLWLRNARQANDM
ALRLARGLEGMHGASVLGATEANIVFCRLPSTLIENLLQAGFRFYHNRWEDNVVRFVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene name confidence: hy predicted by Codon_usage predicted by Homology predicted by FrameD"
                                                                                                                                                                                                                                                     ndctarvegtlselferevkvflvptgtaånalclgamtppwgnvychpsshinnde
Jgapefyingaklvavdgesakidveklraatrvkvgdvhstgpacvslitgatevgsl
Ytlneieaigglckdariklomdgsrfanalvslgcspaamtwkagvdalsfgatkng
                                                                                                                                                                                                                                                                                                                            translation-"MNRDPMPTTRTPALGETSDNIEGASPEVLDAILAANAGQAAPYG
                                                                                                                                                                                                                                                                                                                                                                     protein_id="CAD18267.1"
db_xref="GI:17431590"
                                                                                                                                                                                                                                                                                                                                                                                                                           product-"PUTATIVE LOW SPECIFICITY L-THREONINE ALDOLASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               'evidence=not_experimental
'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="Product confidence : putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MADSVQYQQVADVPGIVISAGRFSQESFERHFHLDFHVGLVTAG
/QRQRFKGKTVLLGPGCISLMPPGEIHDGVAEGDGAYTLKTFRLSQALLANLAQDISG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DHEPELAATILEDPALAGHLLRLHDAMOHSGASTLOVOSEWLALLAFILKOSRALIP
HTKGALSPAOMORVEDYCEAHAGERITLDDLASLCALGREQFLKOPKOTVGMTPHAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Raistonia solanacearum"
| Strain="GMI1000"
| db_xref="taxon;305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ote-"RS05505"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LRLEQACSLLSSRSKAIAEVAQEVGFYDQSHFNRAFRQAFGVAPSHYQS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e="RSp1116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            number-"4.1.2.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e-"RSp1116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ction="small molecule metabolism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 name confidence: putative
licted by codon_usage
licted by Homology
licted by FrameD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in_id="CAD18266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lon="miscellaneous; not classified regulator"
'product confidence : putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d-"megaplasmid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "PUTATIVE TRANSCRIPTION REGULATOR PROTEIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Laboratoire de Genetique Cellulaire
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75010 Paris, France, LMGM CNRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         degradation; amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genoscope and INRA
```

```
4228. .4725

**Gene="RSp1120"

/function="miscellaneous; hypothetical/global homology"

/function="product confidence : hypothetical

Gene name confidence : hypothetical

predicted by Codon_usage

predicted by Homology

predicted by FrameD"
                                                                                                                                                                                                                                                                                                                 4228. .4725
/gene="RSp1120"
/note="RS05499"
                             /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /function="miscellaneous; hypothetical/global homology"
/note="Product confidence: hypothetical
Gene name confidence: hypothetical
predicted by Codon_usage
predicted by Homology
predicted by FrameD"
'product="CONSERVED HYPOTHETICAL PROTEIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="mgwsevgetvcplartlavvgdrwtvlilrelflgvkrfebega
QTCHSSHLLSTRLKRLEADGIVVRHLYSDRPPRHEYRLTSKGLDFYPLLLSLKSHGEK
                                                                                                                                                                                                                                                                                                                                                                                                          \ggfkaktapaltithrqcghetglklvcpacdepfgpkdatvtlgasfkaerqarrd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/product="CONSERVED HYPOTHETICAL PROTEIN=
/protein_id="CALB270.1"
/db_xref="GI:17431593"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(3673. .4161)
/gene="RSp1119"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Product confidence: hypothetical gene name confidence: hypothetical predicted by Codon_usage predicted by Homology predicted by FrameD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="RS05500"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(3673. .4161)
/gene="RSp1119"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mfdtkiaivvrddlatwoklnvtaflmsgitgaspeimgeayrd
aanntyhslcvopvivlsgdoetlkavhrralerkvphglyiedmfstghdaanravf
aehgpdsarvvgialreekklydkitkgarmhp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="RSp1118"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               evidence-not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Complement(3188. .3595)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'product="CONSERVED HYPOTHETICAL PROTEIN"
'protein_id="CAD18269.1"
'db_xref="GI:17431592"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="RSp1118"
/note="RS05501"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAEAARF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="midasihetiiscflehorpetvreiaerrindeaqurqalral
adhhgvvlhphsdeywiahdpsaapttcvvksgnrkwwgncawcalglyhlaggsati
etrigaiddhyiiriengrlldtdyvyhfpidmknavnviytcsvollfrdeaqyde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note "Product confidence : putative Gene name confidence : hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   evidence-not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *CASRGIPKGDVRPIEQVWNFAVEWYARHADADWTKWSVREAIELFARHHLSGPVWTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   function="miscellaneous; hypothetical/global homology"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'protein_id="CAD18268.
'db_xref="GI:17431591"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product-"PUTATIVE TRANSMEMBRANE PROTEIN"
|protein_id-"CAD18268.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         predicted by Codon_usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="RSp1117"
/function="miscellaneous; unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hypothetical
```

Sdo

gene

CDS

gene

CDS

gene

```
Query Match
Best Local S
Matches 876
                                                                                                                                                                                                                                                                                                                                                                                               96247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
TTCGACCGGCGCCTTCTACCCGGCCGCCGCCGCCGCCGCCGACGGAGGGATCGAGGT
                                                                                                  CGAAGTCGAAGCCATGCGCGCAGCTGCGCGAGGCGCTCGACCACGGCGCGCTGGGCCT
                                                                                                                                                GGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCAT 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGTCAACGCCGCCTGTATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAACCCGCCCGCCCCCTGGACCTGCTGGACGACGCGCTCTTACCGTTTCGAGCGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCACCACCGTCATCGTCGGCAACTGCGGCATCAGCGCGTCGCCGGCCACGCTCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTCACCACGGTGGTCACGGGCAATTGCGGGGATCAGCCTGGCGCCGCTGGCGCAC---GC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCGACGAGGAGGTCGACGGCGGGGGCCGGGTGCTGGCGCCCGGGCTTCATCGACGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCGCACACCCGGGTCGACGTGTCGGGCCTGGGTGGTCGGCCCGGCTTCATCGACTCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTCGCCATCGCCGATGGCCGCATCGCCATCGCCACCTCCGACTCCACCGCCTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCCGCAGGGTCCGCATCGTCGACGGCAGCGGCCACGAGCCCGAGTCCACGCTGTTCGA 95946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCCATCGGCGATCTGTCGGACGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 Similarity
876; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="maekittekpradaernegelldvaktafaekgygaslediare
AGVOIGTLYBHFPTBDALIDEIYRDEGSELAEAARQLSEDQPPLEAVRQWLLLFVGYL
ANKQIRADVLNCMTDCSERLCTLSGEVLIETLAQLIERAKQSGAIGLAVEPLDLLSAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note-"Product confidence : putative Gene name confidence : hypothetical predicted by Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara and Calabara a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MPAITRHPRPGAPRYLEDFKVGDLTETSGEAVTRDMILSFAEGY DPQPMHLDETAARDTVPGELVGSGWQTLAVTMRLLLDARLLGGTPTVGAELRDIREHA PMRPGDVLRARAEVIAIRPSKSRPDRGFWDARVTTTNSEGVTLVTQRWSLVVPRRPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="RSp1122"
/note="RS05497"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(5017. .5610)
/gene="RSpl121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGVASFGAELDWEAGARRLVEVMVAGLRVGAATGGKR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="PUTATIVE TRANSCRIPTION REGULATOR PROTEIN"

/protein_id="Oabl8272.1"

/db_xref="G1:17431595".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               predicted by FrameD'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="RSp1121"
/note="RS05498"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(5017.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="CAD18271.1"
/db_xref="GI:17431594"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="miscellaneous;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           by Codon_usage
by Homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 533.6; DB 1;
Pred. No. 2.9e-50;
0; Mismatches 549;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208050;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
'-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                  96426
                               653
                                                                                                                                                                                                                                        96366
                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96186
                                                                                                                                                                                                                                                                                                                                                                          96306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
```

S 밁 å 밁 Ş 밁 Š 밁 Ş 밁 Ş 밁 Ş ā ð 밁 Ş 밁 Ş

```
REFERENCE
AUTHORS
                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                     LOCUS
DEFINITION
                                                                                                                                              RESULT 9
                                                                                                                                                                                             밁
                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                          멼
                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                               ORGANISM
                                                                                                                                                                                                                                           97207
                                                                                                                                                                                             97267
                                                                                                                                                                                                                                                                                                                                          97087
                                                                                                                                                                                                                                                                                                                                                                                          97027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96907
                                                                                                                                                                                                                                                                                           97147
                                                                                                                                                                                                                                                                                                                                                                                                                                          96967
                                                                                                                                                                                                                    1434
                                                                                                                                                                                                                                                                   1374
                                                                                                                                                                                                                                                                                                                  1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96847
                                                                                                                                                                                                                                                                                                                                                                                                                  1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96427
                                                                                                                                                                                                                                                                                                                                                                   1254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             894
                                                                                                                                                                                      CGGTGCCGTGCAGCCGCGCGCGCCGGGCGCGTTCCTGCGGCGCGGGCC 97314
                                                                                                                                                                                                    CAAGCAGCCGGCCGCCATCGAGGCGGTGTGGGTCAACGGCGCGCTGTCGTACCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCCTGCCGACGACGACGCCCGCGATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCT 1193
                                                                                                                                                                                                                                                      TACCGAGCGCGCCGCCGCCATTCCGTGTACGTCAACGGCGCGCCCGGTCTGGCAAGA
                                                                                                                                                                                                                                                                                    GGCCGATCTCGTGCTGTTCGACCCCGACACGGTGCGCGACCTCGCCACCTTCACCGACCC
                                                                                                                                                                                                                                                                                                           CGCCGACCTGGTGGTGTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCC
                                                                                                                                                                                                                                                                                                                                                 CGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGCAGCTGCAGGCTGCAGGCCGGGTACTT 1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGA 1133
                                                                                                                                                                                                                                                                                                                                   CGGACAGTCCGCCGAGCGCTTCGGCCTGGCCGAGCGCGTCGTGCGCGAAGGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                   CGCCCACTACAGCCGCGAACGCCAGTTGCTGAGCCTGGCGGCGGCCGTCCGCAAGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                         GGGCCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGAC 1253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATGGCGGCCGAGGACCTCGACCGCATCATTGCGCACCCCGCCACCGTGATCGGCTCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGTCGGACCCGCATCCGGAGATGGCCGGCCAGACCCTGAAGGCCATCGCCGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGGCCGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCCACCGGACTGGCCTATGCCAACGCCCATGCCGCCGCCACCGAAGAAGTGATGAGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAATCGATCGAGGCCGCGCAGCGCTACCAGCCGGTCGGCTGCGACTGCTATCCGTACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGGAGCTGGACGTGCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCCGAGCCGCTGGCCGAGGCCGCGCGCGTGTACACCACGCACCTGCGCACCGAGTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGCCGGCCGCTGAGCGCGTATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGA
                            N-acyl-D-amino acids amidohydrolase Alcaligenes xylosoxydans (strain A-6) Achromobacter xylosoxidans Bacteria; Proteobacteria; beta subdivi
                                                                                                     AFAA6
Alcaligenes xylosoxydans DNA amidohydrolase, complete cds.
                                                                                  D50061.1
                                                                                               D5006
                     Achromobacter.
          (bases
        1 to 1467)
                                                                                 GI:769683
                              beta subdivision;
                                                                                                                  for
                                                                                                                 N-acyl-D-amino
                                                    DNA,
                                                     clone
                             Alcaligenaceae,
                                                                                                                            linear
                                                                                                                  acids
                                                    PAGD
                                                                                                                            BCT
                                                                                                                            10-FEB-1999
                                                                                                                                                                                                                                                             1433
                                                                                                                                                                                                                                                                                                            1373
                                                                                                                                                                                                                                                                                    97206
                                                                                                                                                                                                                                                                                                                                  97146
                                                                                                                                                                                                                                      97,266
                                                                                                                                                                                                                                                                                                                                                                                   97086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1073
                                                                                                                                                                                                                                                                                                                                                                                                                                  97026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96486
```

```
밁
                                                              Ş
                                                                                                 밁
                                                                                                                           Ş
                                                                                                                                                            밁
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                       491
                                                                   539
                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                              479
                                                                                                                                                            371
                                                                                                                                                                                       419
                                                                                                                                                                                                                      314
                                                                                                                                                                                                                                                    359
                                                                                                                                                                                                                                                                                254
                                                                                                                                                                                                                                                                                                              299
                                                                                                                                                                                                                                                                                                                                                                         239
                                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                           194
                                                                                                                                                                                                                                                                                                                                                                                                       134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
CCGGCGCCTTCTACCCGCCGCGCGCGCGCGCCACCGAAGAGATCATCGAGGTGTGCC
                             TCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGA
                                                                                       ACGCCAACCTGCGCCTGGCCGATGCGCGATCCGGCGCACAGCCCCAGCGCGAAGGAGC
                                                                                                                   ATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAA 538
                                                                                                                                                 TGTACTTCGGCGCGCTGGAGGCGCAGCGGCCGATGATCAACGTGGCCGCCCTGGTGGGCC
                                                                                                                                                                             ACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCC
                                                                                                                                                                                                                                 CGCCCGCCCCTGGACCTGCTGGACGACGACGCTTTACCGTTTCGACGCTTTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATACCGCCGC---GGCGTTGGCCCTGCTGGGCGACTCGCCGCTGTTCGCGGACATGGCCA
                                                                                                                                                                                                                                                                                                    TCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACC
                                                                                                                                                                                                                                                                                                                                   CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGGCG
                                                                                                                                                                                                                                                                        GGACGGCGCCTCGATGCCGGCGGCAGGATGCTCGTCGGCTGCATGATACCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                           CGCACACCCGGGTCGACGTGTCGGGCCTGGTCGCGCCCCGGCTTCATCGACTCGCACA 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGATCTGGTCATCGAAGGCGGCTGGGTGATCGACGGGCTGGGCCGGGCCGCGCCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (06-MAR-1995) Mamoru Wakayama, Oita University, Applied Chemistry; Dannoharu, Oita, Oita 870-11, Japan (Tel:0975-69-3311(ex.746), Fax:0975-69-7957)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 59.:
13; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thesis (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Studies on structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADRRIDAGGRIVAPGE IDTHGHIDILHIVEKPOLEMKTSOGITSVVGNOGISGAPAPI
PGNTAAALALIGDSPLFADMAMYFGALEAQRPMINVAALVGHANLRLAAMRDPAAQPS
AKEQRAMERMIADALEAGAVGFSTGLAYQPGGVAEQAELDGLARVAAARGALHTSHIR
NEGDAVEAAVLEEVLAVGRRTGCATVLSHKCMMPAANGKSAATLANIDRARAACHTSHIR
LDIYPYPGSSTILIPERADQIDDIRITWSTPHFECGGQSLAEIAARWGCDAVTAARRI
LPAGAYTFAMDENEVRRIFOHECCMVGSDGLPNDAHPHPRLMGSFTRVLGRYVREAEL
LTLEAAVAKMTALPARVFGLADRGRLAVGAMADVVVTDADTVCDRATMDAPTLASAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EHVLVNGCAVFPQAPPSHRPGRILRRDASIAGAPEFSR*
530 c 530 g 194 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="N-acyl-D-amino acids amidohydrolase"
/protein_id="BAA08778.1"
/db_xref="GI:1707291"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translation="MQEKLDLVIEGGWVIDGLGGPRRRADVGIRGERIAAIGDLSAAp/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strain-"A-6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="taxon:85698"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organism="Achromobacter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _FACULTY_/Applied Chemistry/_MAJOR_, Oita University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              core 455.8; DB 1;
red. No. 4.8e-41;
Mismatches 552;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           function of bacterial N-acyl-D-amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                xylosoxidans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178
                                                                                         490
                                                                                                                                                   430
                                                                                                                                                                                478
                                                                                                                                                                                                                                          418
                                                                                                                                                                                                                                                                          313
                                                                                                                                                                                                                                                                                                       358
                                                                                                                                                                                                                                                                                                                                     253
                                                                                                                                                                                                                                                                                                                                                                                                193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
```

```
밁
                                                           밁
                                                                                  Ş
                               δÃ
                                                                                                             밁
                                                                                                                                    S
                                                                                                                                                                밁
                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
      1331
                                1376
                                                          1271
                                                                                   1316
                                                                                                             1211
                                                                                                                                       1256
                                                                                                                                                                1151
                                                                                                                                                                                          1196
                                                                                                                                                                                                                    1091
                                                                                                                                                                                                                                          1136
                                                                                                                                                                                                                                                                    1031
                                                                                                                                                                                                                                                                                            1076
                                                                                                                                                                                                                                                                                                                                              1016
                                                                                                                                                                                                                                                                                                                      971
                                                                                                                                                                                                                                                                                                                                                                        911
                                                                                                                                                                                                                                                                                                                                                                                                                           851
                                                                                                                                                                                                                                                                                                                                                                                                                                                     968
                                                                                                                                                                                                                                                                                                                                                                                                  956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 551 CGGGCCTGGCCTACCAGCCGGCGGGCGGCGCGAGCAAGCCGAACTGGACGGCCTGGCGC
CGCTGGCCTCGGCCGGCATCGAGCACGTGCTGGTCAACGGCTGCGCGGTGT 1381
                                                                           CCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTA
                                                                                                      GCCTGACCGCCGCGCCTTCGGCCTGGCCGGGCCAGCTGCAGGCCGGGTACTTCG
                                                                                                                                                                                                                          GCCTGCCGCACGACGACCGCCCCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGG
              CCGAGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCT 1426
                                                    CGACGTGGTCGTGTTCGACGCCGACACGGTGTGCGACCGCCACCTGGGACGCGCGA
                                                                                                                                                         GCCGCTACGTGCGCGAAGCCGAACTGCTGACGCTGGAGGCCGCCGTGGCCAAGATGACCG
                                                                                                                                                                        GGCACTATGCGCGCGACACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAGATGACCG
                                                                                                                                                                                                           GCCTGCCCAACGATGCCCATCCGCACCCCACGCCTGTGGGGCAGTTTCACGCGCGTGCTGG
                                                                                                                                                                                                                                                             TGGACGAGAACGAGGTGCGCCGCATCTTCCAGCACGAATGCTGCATGGTCGGCTCGGATG
                                                                                                                                                                                                                                                                                      TGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACG
                                                                                                                                                                                                                                                                                                                 GCAGITCCACCATCCTGATACCCGAGCGCGCGACCAGATCGACGATCACCT
                                                                                                                                                                                                                                                                                                                                                                 GETCGACCCCGCATCCCGAATGCGGCGGCGGCAGTCGCCGGGGAGATCGCCGCGCGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                          CCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACATCGACCGCGCGCGCGCGCGCGCGTCGACGTGGCGCTGGACATCTACCCGTATCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGATCGA---GGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTCGCACCACAAATGCATGATGCCGGCCAACTGGGGCCAAGAGCGCCGCCACGCTGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGGAGCTGGACGTGCCGGTGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGAGGCCGCCGTCGACGAGGTGCTGGCGGTCGGTCGCCGCACCGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGTCGCGGCGCGCGCGCGCGCTGCACACCAGCCACATCCGCAACGAGGGCGACGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCCGCTGAGCGCCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACA
                                                                            1375
                                                      1330
                                                                                                      1270
                                                                                                                                 1315
                                                                                                                                                           1210
                                                                                                                                                                                    1255
                                                                                                                                                                                                             1150
                                                                                                                                                                                                                                     1195
                                                                                                                                                                                                                                                               1090
                                                                                                                                                                                                                                                                                      1135
                                                                                                                                                                                                                                                                                                                 1030
                                                                                                                                                                                                                                                                                                                                         1075
                                                                                                                                                                                                                                                                                                                                                                                            1015
                                                                                                                                                                                                                                                                                                                                                                   970
                                                                                                                                                                                                                                                                                                                                                                                                                       910
                                                                                                                                                                                                                                                                                                                                                                                                                                                955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  610
```

WPCOMMENT RESULT 10 LMFLCHR34\_10/c

Sequence split LMFLCHR34\_00 LMFLCHR34\_02 LMFLCHR34\_02 LMFLCHR34\_03 LMFLCHR34\_04 LMFLCHR34\_06 LMFLCHR34\_06 LMFLCHR34\_07 LMFLCHR34\_09 LMFLCHR34\_09 LMFLCHR34\_10 LMFLCHR34\_10 into 18 1000001 10000 20000 30000 40000 50000 70000 80000 90000 Begin fragments 910000 1010000 1110000 510000 110000 210000 310000 410000 LOCUS LMFLCHR34 Accession AL499623

Ş

```
Š
                               밁
                                                 δÃ
                                                                            밁
                                                                                                 Š
                                                                                                                           몽
                                                                                                                                               Ş
                                                                                                                                                                         밁
                                                                                                                                                                                              Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Continuation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                               91169
                                                                                                                            91289
                                                                                                                                                                          91349
                                                                                                                                                                                                                                                                     91469
                                                                                                                                                                                                                                                                                                                     91529
                                                                                                                                                                                                                                                                                                                                                                                                                 91649
                                                                                                                                                                                                                                                                                                                                                                    91589
                                                                                                                                                                                                                                               1250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                91709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1190
                                                                                                                                                                                                                                                                                                                                           1130
                                                                                                                                                                                                                                                                                                                                                                                          1070
                                                                                                                                                                                                                                                                                                                                                                                                                                        1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LMFLCHR34_13
LMFLCHR34_13
LMFLCHR34_14
LMFLCHR34_15
LMFLCHR34_16
LMFLCHR34_16
LMFLCHR34_17
                                                                                                                                                                                                 1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      650 AGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACACATGCGCGACGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
TGGACGCAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCG
                                                                                                                   CGCCAACGCAGCCGTCGGTCGGCATCCGGGACGTGTTCGTTGCGGGGGCAAGCGACGCTGC
                      ACCCTACCGAGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGC
                                              AGGTGGCCGACATTGCGGTGTTCGACCCGGCGACGATCCGCGATTGCGCGACCTTCGATG
                                                                                                                                                                                ACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAAC
                                                                                                                                                                                                                TGACCGGTCTGCCCCACAGCGCTTCGGGCTGGAGGGGCGCGCCACCTTGCGGTCGGCA
                                                                                                                                                                                                                                       TGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGA 1249
                                                                                                                                                                                                                                                                                                            CGGACGGCATTCCGTCCGACGAAACGCCGCATCCCCGGCTGTGGGGCACCTTCCCGCGCG
                                                                                                                                                                                                                                                                                                                                    CCGACGGCCTGCCGCACGACGAGCGCCCCCCATCCGCGCCCTGTGGGGGCACCTTCCCGCGGG
                                                                                                                                                                                                                                                                                                                                                           TCATCATGGACGAGGGCGATGTGCGGGACATCCTAAGCTACCCGGACACGATGATCGGCT
                                                                                                                                                                                                                                                                                                                                                                                  TCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCT
                                                                                                                                                                                                                                                              TGCTTGGACTGTACTCGCGGGATCTCGGCCTGTTTCCGCTCGAGCGCGCGGGTTCACAAGA
                                                                                                                                                                                                                                                                                                                                                                                                         AATGGCGGCGCTCGCGGCGCGAGGTGGCCGAGGCCTTGCTGCCGGGCGGCGGCGCGTGTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                TCACCTGGTCGGCCCCGCATCCGGAAGCCGCCGGCCGCTATCTGGAGGATCTGGCCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGCGGCCTCGTCGACCATGCTGCGTCCGGAACGGGTCGACCAGTGCGACCGCATCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTGGCGCAGGTGCGGGAACTGGCGAGCACGATGCCGCTTTGCCTGGACTGCTATCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGACCGTGATCTCGCATCACAAGCTGGTCGGCAAGCGCAATCACGGCCGCAGCCGCGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     489;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18)
                                                                    얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.48;
49.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LMFLCHR34 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1310000
1410000
1510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1720777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 306; DB 2;
Pred. No. 2.1e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          base 1000001 (AL499623 Leishmania major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                505; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                       91110
                                                                     91170
                                                                                             1489
                                                                                                                                           1429
                                                                                                                                                                                         1369
                                                                                                                                                                                                                                         1309
                                                                                                                                                                                                                                                                                                                                                          91530
                                                                                                                   91230
                                                                                                                                                                   91290
                                                                                                                                                                                                                 91350
                                                                                                                                                                                                                                                                                                             91470
                                                                                                                                                                                                                                                                                                                                                                                   1129
                                                                                                                                                                                                                                                                                                                                                                                                         91590
                                                                                                                                                                                                                                                                                                                                                                                                                                 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1009
                                                                                                                                                                                                                                                               91410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        709
                                                                                                                                                                                                                                                                                                                                                                                                                                                         91650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             chrom
```

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 11
SC2K36/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rocas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCGCTGCCCACTGCATGGCGCCGGCCGCCGCGC 91016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NNNNNNNNNNNNNNNNNNNNNNNNNNGCATCGTCGGCGTGTGGGCGCAGTGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGCAAGGAAGTGATGGGCGCGCGCCTGCGCGC
                                                                                                                                                                                                                                                           In codons is given for each CDS.

Usually the highest scoring match found by fasta o is given for CDS which show significant similarity to other CDS in the database. The position of possible ribosome binding site sequences are given where these have been used to deduce the initiation codon. Gene prediction is based on positional base preference in codons using a specially developed Hidden Markov Model (Krogh et al., Nucleic Acids Research, 22(22):4768-4778(1994)) and the FramePlot program of Bibb et al., Gene 30:157-66(1984) as implemented at
                    IMPORTANT: This sequence MAY NOT be the entire insert of the sequenced clone. It may be shorter because we only sequence
                                                                                              jun/cgi-bin/framepiot.pl. CAUTION: We may not have predicted the correct initiation codon. Where possible we choose an initiation codon (atg, gtg, ttg or (att)) which is preceded by an upstream ribosome binding site sequence (optimally 5-13bp before the initiation codon). If this cannot be identified we choose the most
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (31-MAY-2001) Streptomyces coelicolor sequencing project, Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 15A E-mail: barrell@sanger.ac.uk Cosmids supplied by Prof. David A. Hopwood, [3] John Innes Centre, Norwich Research Park, Colney, Norwich, Norfolk NR4 7UH, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O'Neil, S. ar
Unpublished
                                                                                     upstream initiation codon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (URL; http://www.sanger.ac.uk/Projects/S_coelicolor/) CDS are numbered using the following system eg SC7B7.01c. SC (S, coelicolor), 7B7 (cosmid name), .01 (first CDS), c (complementary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The more significant matches with motifs in the PROSITE database are also included but some of these may be fortuitous. The lengtl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces coelicolor sequencing at The Sanger Centre 1 by the BBSRC and Beowulf Genomics Details of S. coelicolor sequencing at the Sanger Centre available on the World Wide Web.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces coelicolor A3(2).
Streptomyces coelicolor A3(2)
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Streptomycineae; Streptomycetaceae; Streptomyces.
1 (bases 1 to 22251)
Redenbach, M., Kieser, H.M., Denapaite, D., Eichner, A., Cullum, J.,
                                                                                                                                                                                                                                                        ttp://www.nih.go.jp/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         strand).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cerdeno, A.M., Parkhill, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aminotransferase; bifunctional protein; carbohydrate kinase; D-amino acid deaminase; D-aminoacylase; IclR-family transcriptional regulatory protein; metal ion transport protein; phosphoenolpyruvate carboxykinase; RNA polymerase ECF sigma factor; sugar transport integral membrane protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces coelicolor
AL591857 AL645882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL591857.2 GI:20520740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kinashi, H. and Hopwood, D.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        et of ordered cosmids and a detailed genetic and physical map
the 8 Mb Streptomyces coelicolor A3(2) chromosome
Microbiol 21 (1), 77-96 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 to 22251)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Harris, D
It may be shorter because we ns once, or longer, because w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22251 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barrell, B.G. and Rajandream, M.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2K36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fortuitous. The length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Centre is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             funded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91050
```

overlapping

sections

ĕ

arrange

```
FEATURES
                                                                          misc_feature
                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      overlaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             small overlap between neighbouring submissions. Cosmid 2k36 overlaps cosmid SCk15 and cosmid SCk13,
                                                                                                                                                                                                                                          RLCGELVEKGTFRKLDPIKRENSYYAASDPTDVARVEDRTFICSAKEEDAGDTNHWKD
PAEMAAI FTGDKGEGGLFRGSMRGRIMYVVPPCMGPLGSPLSALGYEITDSAYVAASM
RTMTRMGOPVLDELGDEGFFVKAVHSVGAPLEPGOADVPWPCNSTKYISHFPEDREIW
SYGSGYGGNALLGKKCYALAIASVMARDEGHLAEHMIVLKLTPFGAPKYVAAAPPSA
CGKTMLAMLEPTISGWTVETIGDDIAMMRRGEDGRLYAINPEAGFFGVAPKYVAAAPPSA
NAMKTLMGNSVFTWYALTDDGDDVMWEGMTEETPAHLTDWKGNDWTPESGTPAHPYNA
FTTPAAQCPIIAPEWSDFROVPISAILFGGRRATAVFLYTESETPHHGYUFLGANVASE
KTAAAEGKVGELRRDPFAMLPECGYNMGDWHHWDVAKDKDQSKLPKITVYNWFEKD
TAAAEGKVGELTRDPFAMLPECGYNMGDYMGHWTDVATDKDQSKLPKITVANVASE
                                                                          1967.
                                         'gene="2SCK36.02
                                                                                        /note="Pfam match to entry PF00821 PEPCK,
Phosphoenolpyruvate carboxyKinase, score 1344.70, E-value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="ZSCK36.02, probable phosphoenolpyruvate carboxykinase, len: 609 aa; similar to SW.PPCK_CHLI (EMBL:S56812) Chlorobium limicola phosphoenolpyruvate carboxykinase [GTP] (EC 4.1.132) PckA, 646 aa; fasta scores: opt: 2400 Z-score: 2689.0 bits: 507.7 E); 369-142; 58.3618 identity in 598 aa overlap. Contains Pfam match to entry PF00821 PEPCK, Phosphoenolpyruvate carboxykinase and match to prosite entry PS00505
                                                                                                                                                                                                            LSVDKEVWREEAALVPEHLNTFGDHTPAELWDQYRALVRRLG"
                                                                                                                                                                                                                            )AGRFVWPGFGENGRVLKWIVERLEGRADGVETPIGVLPTKESLDTDGLDLADADLEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "translation="MARDIAAPPVPTNHQELISWVNEIAELTQPDAVVWCDGSEAEYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             db_xref="SPTREMBL:Q93JL5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'product="putative phosphoenolpyruvate carboxykinase"
'protein_id="CAC40592.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hosphoenolpyruvate carboxykinase (GTP) signature"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MTASVPDAPRDLPAGGRGPVTLSLPHPVKPKLRGWLHLGMFPAV
LVAGLVLTALAETSBARIACGVYVLTACLLFGYSALYHRGDWSBRMDGVLRRLDHANI
FLIIAGTYTPLTMLLLPGAKCEWLLWGIWAAAAAGIVFRVFWVGAPRWLYTPCYLAMG
WAAVFYLPBEMRAGGVAVLVLVIVGGLLYSAGGVIYGLKRPNPSPRWFGFHEVFHSFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 trans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="2SCK36.02"
/note="2SCK36.02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(160. .864)

/gene="25CK35.01c"
/gene="25CK35.01c"
/note-"25CK35.01c, conserved hypothetical membrane
protein, len: 234 aa; similar to SW:YA85_MY2TU
(EMBL:AL021897) Mycobacterium tuberculosis hypothetical
26.0 kDa protein RV1085c or MTV017.38c, 242 aa; fasta
scores: opt: 563 Z-1005core: 653.6 bits: 128.3 E(): 8.6e-29;
39.524% identity in 210 aa overlap. Contains possible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="2SCK36.02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(160.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note-"SC04978"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note="nominal overlap with Streptomyces coelicolor cosmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Streptomyces coelicolor A3(2)"
/strain="A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="taxon:100226"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           roduct="putative integral membrane protein"
rotein_id="CAC40591.1"
b_xref="GI:14285372"
b_xref="SPTREMBL:093JL6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         drophobic membrane spanning regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAHYVGISLVAY*
                                                                                                                                                                           2SCK36.02*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _start-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:1428527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .01c*
                                   밁
                                                                                     ş
                                                                                                                                       Matches
10533 CCGGGACCCAGGAGGAGTCAGGCATGGAAGAGCTGGTCATCAGGGACGCCGACGTCGTGG 10474
                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
```

```
Query Match
Best Local Similarity
Conservative
                                                                                                                                                                                                                       5801. .5983
/gene="2SCK36.05"
/note="2SCK36.05, p
Contains possible h
                                                                                                                                   /transl_table=11
/product="putative membrane protein"
/protein_id="CAC40595.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schizosaccharomyces pombe putative glucan synthase-1 (EC 2.4.1.34) SPBC30D10.17c, 504 aa; fasta scores: opt: 176 Z-score: 188.3 bits: 44.3 E(): 0.0071; 24.931% identity in of TR:AAK22951 (EMBL:AE005774) Caulobacter crescentus scores: opt: 146 Z-score: 160.2 bits: 38.4 E(): 0.26; 26.590% identity in 173 aa overlap"
                                                                                                                                                                                                     codon_start=
                                                                                                                                                                                                                                                                                                               note-"SC04982"
                                                                                                                                                                                                                                                                                                                                   'gene="2SCK36.05
                                                                                                                                                                                                                                                                                                                                                                                                   Complement.
                                                                                                                                                                                                                                                                                                                                                                                                                         LEGDLDTDRTAQGGAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="Sptrembl:093JL3"
/translation="mssihdfatwepllrivrashperlagpgghymgoiglggwsvp
vrrphpapgraslvedmodeftavea.voaalrahgrosvsfmvetrvdgrtalkvvds
gpavehglyspfygtlvlvegavpepwrrlpeavpgalpapsadpallertlrerlpd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LDQLYVADARSRPCLWQFAATDAAVTAPDAAVQGLVGSPGWIAFGDNGGGDRLALDLT
                                                                                                                                                                                                                                                                                                                                                                                                                                 'LRLGPEEWRVLLDAGAVPRSLLAAH I EVRGEHHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="CAC40594.
/db_xref="GI:14285275"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="2SCK36.04c, possible bifunctional protein, aa; N-terminal region presents low similarity to N-terminal region of TR:014362 (EMBL: 297992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(4210. .5610)
/gene="2SCK36.04c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLGTPLPGDYKRLYEIFGGAGAFDGYLQLQVPDAHDRSTDLYRHTEWLGEWARTHG
SRLWEPYPVYPAPGGLLQWASTEQADGFYWLTGDPDPDRWPVLAKEDVPDSWERFDGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MSGDGLEGILAAVHRITAQRMGPPVCGTAGHGTGHVCLVPPAGA
GLPGIJEAIGSREGEPLRIVTGTTTEAAGGSAGIPLRTPEGERIVEMRAWAYGDRWIG
CGTVRADDADGAVRPVVLVAERADPAAGASAPATWVDGIVAVTGWETARARAVDWPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGEFVHRMLTEPDHPFSTARWFDVHWYQDYGPAAADEGRV
                                                                                 9.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="SC04981"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="2SCK36.04c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(3263. .4213)
/gene="2SCK36.03c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'product="hypothetical
'protein_id="CAC40593."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="2SCK36.03c"
/note="2SCK76.03c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              trans]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="2SCK36.03c, unknown,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="PS00505 Phosphoenolpyruvate carboxykinase (GTP)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SAVARPELEVLVLGGREGEPRSLAPLAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <sup>y</sup>GGHTGQVVMIGHEDSIGAGLLAESLTDMVVNGRAEWHPGRDWDRPPVVARLNVLG
                                                                                                                                                                                                                                                                                                                                                                                              (5618.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          putative
                                                                        Score 171.8; DF
Pred. No. 1.5e-J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RLGVTLPDELKALYRVVRARWQDWRGDYAAQERVVDAVGCELLP
                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                            .5621)
                                                                                                                                                                                                            putative membrane protein, len: 60 aa
hydrophobic membrane spanning region*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bifunctional protein'
594.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .5610)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein 2SCK36.03c
                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           len: 316
                                         Indels 183; Gaps
                                                                                          Length 22251;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       len:
                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     466
```

р	GCAGC 105	34TGGTGCCCGAGCTGCAGC	1034	δδ
7	GGCGC 9397	6 CCGGCACGGGC	9450	밁
	1033	1	1004	δÃ
7	GATCT 945	16 AGGTGATCGGCTCCGACGGCTCCCACGGCGTGCCCATGGAGTGGGGAGACGATCGAGATCT	9516	문
	1003	4	97,	9
7	CCCCG 973	14 AGCAGGACCGCGTGCTGGTGCAGCGACCACCATCATCACCTGGTGCAAGCCCTTCCCCG	957	ρ Q
7	w		963	망
		ω	89:	δÃ
7		6 CCCTGCTCGACGAGGCACTCGCGGG	969	B
	œ ·	6	83	ν
7	GCTGC 835	56 ACCTGGCGACGACCATGAACTTCGGCGTGAACAAGGCGCAAGGCTCCAACTTCAATTTCGGCGAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCGCCCAACTGCTGAACAAGGCGCAAGGCGCCCAAGCTGCTGAACAAGGCGCAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCTGCTGAACAAGGCGCAAGGCTGAACAAGGCTGCTGAACAAGGCTGCTGAACAAGGCGCAAGGCTCCAAGCTGCTGAACAAGGCGCAAGGCTCCAAGCTGCTGAA	975	윰 :
7	ဖ			9
		16 ACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCAGCTGGACGTGCCGGTGG	71	g &
7		6	987	밁
	CGAGC 715	56	65	Q
7.	AGCTGT 987		99	밁
	n 10	თ	U1	οy
			ω.	당 :
` \		σ		ó
		476 GCCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCCGCCACCGACGAGG	10	당. 양
)57	rGATCC 100		10	밁
CI.	recrec 475	416. CCGACTACCTGGACGCGTTGCGGGCGCCACGCCGGCCGGC		δō
114		ရှ	10173	日
		59	w	Qy
174	rececc 101	TOGGCCAGGACGGCTGTCGTACGCACCGGTCGACCGCACCCTCG	10	문
•		314 CGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACC		Ş
234		293 CGCTGCTGCGGGACCCGGACCACAGCGCCAAGGCCGCCCAGGGCGTCACCCTGGAGGTCA	0 1029	Db
ω ,		4	y 25	γo
294	10	353 ACGCCGAGGGCCTGGTCCTGTCCCCGGCTTCATCGACATGCACGCCACAGGGACCTGG	b 1035	Д
ω (		94	_	Q
3 3 4	-GGTCG 193	152 CCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCG		당. 등
10414			10	말
1	recece 151	92 ACGGCAGCAACACCCCGGGGGGGGGGGGGGGGGGGGGG		Qγ

```
RESULT 12
AF453501/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 윰)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                 JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE.
                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                             PUBMED
                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8916 GCCGGGTTCCGCGCTGAGCCCGG 8894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1472 CACGCACGGCCGGCCTGAGCCCGG 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9036 CGGGCAGCTCGTTCGACGAGCCGCGGGTGCTGCCTACGGGCATCCCGTACGTGCTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1172 GGGCCACCTTCCCGCGGGTGCTGGGGCCACTATGCGCCGACCTGGGCCTGTTCCCGCTGG 1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9336 CGCCGACCATCCTCCAGCACGTCGGCCACGAGGAGAACGTGCGCGCGATCATGCGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9396 GGCTGCGCGGGAGAGCCCGTGGACGGTCGCCCGGCACCTGCTCGTCGCCGACCGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCTGGTCCGCGAGGGGTACCGGGCCGACCGTGGTGCTCTTCGACCCGGCCACGGTGGCCG. 9037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCG 1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGAGTGCGTGGCCCACCTCACCTCACGCCCGGCGGCCCGGCTGCGGCTGCCGGACCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGCACCTTCCCGCACTACCTGGGCCACTACGTGCGCGAGCTGGGGCGTGCTCCCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGTCCACACCGGCGCCTCGGACGGCATCCTCCAGGGCGCAAGCCGCACCCGCGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 82746)
Yu,T.-W., Bail., Clade,D., Hoffmann,D., Toelzer,S., Trinh,R.Q.,
Xu,J., Moss,S.J., Leistner,E. and Floss,H.G.
Direct Submission
Submitted (28-NOV-2001) Department of Chemistry, University of Washington, Box 351700, Seattle, WA 98195-1700, USA
                                                                                                                                                                                                                                                                                                                                                      Yu, T.W., Bai, L., Clade, D., Hoffmann, D., Toelzer, S., Trinh, K.Q., Yu, J., Moss, S.J., Leistner, E. and Floss, H.G.
The biosynthetic gene cluster of the maytansinoid antitumor agent ansamitocin from Actinosynnemapretiosum
Proc. Natl. Acad. Sci. U.S.A. 99 (12), 7968-7973 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Actinosynnema pretiosum subsp. auranticum.
Actinosynnema pretiosum subsp. auranticum.
Actinosynnema pretiosum subsp. auranticum.
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Bactinomycetales; Pseudonocardineae; Actinosynnemataceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF453501 82746 bp DNA linear BCT 18-JUN-2002 Actinosynnema pretiosum subsp. auranticum maytansinoid antitumor agent ansamitocin biosynthetic gene cluster I, partial sequence. AF453501
                                                                                                                                                                                                                                                                                                                           22056096
12060743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF453501.1 GI:21449342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 82746)
                                             /db_xref="taxon:42198"
<1. .82653
                                                                                  /sub_species="auranticum"
/db_xref="ATCC:31565"
                                                                                                                      /organism-"Actinosynnema pretiosum subsp. auranticum"
/strain-"ATCC 31565"
/note="cluster I of the maytansinoid antitumor agent
ansamitocin biosynthetic gene cluster"
                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1111
```

```
gene
                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SdS
                                                                                                                                                                                                                                                                                                                                                    /trans1at1on="marrnperraalldaavevlagegargltfravdoragvpagta
SNYFAGRAEILTGAGERVYORLLDOAPLGETPDGPRDRSRVTELMHALVDRVSAFPTG
FLALLELRLEAARNPELREVLTARVRADLRFNAEHHAASGLPGDGTTVALLWLALNWL
/translation="mrklyypiaasidgviagpegehdfyptaepmyehlraeypett
PTHVRPLVCMPLDTPNRRYDTVLMGRGSYQPALDAGVGSPYAHLRQYVVSRSL£DADP
AVALVRAD£VGLVRELKREDGLDVWLCGGADLAGQLL£EIDELVVKTY£VVAGGGT£L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(3450. .4064)
/gene="asm34"
                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="transcriptional regulator"
/protein_id="AAM54112.1"
/db_xref="G1:21449380"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(3450, .4064)
/gene="asm34"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="bicyclomycin resistant protein"
/protein_id="AAM54113_1"
/protein_id="AAM54113_1"
/db_xref="GI:21449381"
/tabslation="MANGANSAVGGWLPAILIVALTGTIIEIDMSVPSFPDIARELG
VGGPAVQLTVTLNFLGYCLGALCHGPLSDRFGRRPVLLGGSAVMLVGALGCALAPTIG
VGGPAVQLTVTLNFLGYCLGALCHGPLSDRFRGPAALRNYGLVNAAMSALMTCAPLLGGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARMTVERADLGEQAS PNDVDVVFQVEAPVETSAKVTHTYTAGAGGSVAXQPSSANVPN
PERGLYHHTGDCDKADLSADALRYRFE OG TTLAMCVFYLAEHES SP I AQTALDRLQR
QFDAARVAGVEKUVLREAVTASES GEDA PKERVLAHIDGLAP LLIRANADVTAVVQAGFV
GAWGEWYYTKNEGNAGVVSATDQANRKAVVDKLLTALDADRAVQLRTFK KRALYGGF
STR IGHINDC FLASDYDFGTYSDDATEY PYLEAFTRTLPMGGETCAVWPPRTDCPTAT
AELSREHWTLINTDVQODVLEAWSAGGCLAEVTAKLGYRFTLRDSVFPTTTTGAALDF
VRVNLTNDGVAAAVNQRTVNLVLRNTTTGALTRLPLTANDGRTWLDGARAIAQDAQIPP
SLATGGVALLLELADDALPGRPEYSIQTANTGLMDARTGLNDLKQTITYS"
                                                                                               db_xref-"GI:21449379"
                                                                                                                        protein_id="AAM54111
                                                                                                                                            product="dihydrofolate reductase"
                                                                                                                                                                              'transl_table=11
                                                                                                                                                                                                                                'gene="asm33"
                                                                                                                                                                                                                                                                                      'gene="asm33"
                                                                                                                                                                                                                                                                                                                                   "LERLTLPDLLTDHQRRDLVTALVDRLLAGQPEEAGSPFDESGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPELAGAASSATMGLRALLVTLLTALAGALSTGGPFAPAAVMAGAVAAVVLLSALSPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AASLTPSILFAAYLVFIAASPFLYTAAFGLGVTGFALHLLVVVASFAVDSAFATGIIP
LLGGPAGAVRWGLGAVVVGVLGFLLLGDGPVAVTGSVALFCVGEAVCYPVVFDRSMSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NRVAGWRGNYLAVCATTALSLLLVFLFLPETRTRARTAITARSVLADYRRLLGSRAYL
                                                                                                                                                                                                       codon_start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(2129. .3307)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="unknown"
/protein_id="AAM54114.1"
/db_xref="Gi:2144982"
/translation="MVTASAVICARAGCGAPRPAGATARWRFCSTACKQAAYRLRRKA
CSASHEHEDEQLREALLALVARARTITEATPPWSAQATALVGLARRVVELAAARDAGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'transl_table-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAFSRVYVDTDRSAATGYAQGGIGADHLLENGSLYRHSGGGWAWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein_id="AAM54115.1"
db_xref="GI:21449383"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="asm37"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="IVPGLYVALAATGVLAAPASAAITSPTVTSTATTVTFEVGRTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e="asm36"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .ement(2129. .3307)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'asm37"
                                                     CDS
                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
```

```
/codon_start=1
/transl_table=11
/product="transcriptional r
/protein_id="AAM54107.1"
/db_xref="GI:21449375"
/gene-"asm28"
10393. .10857
/gene-"asm28"
                                                                                                              /translation="msdavrrequvaaalrvmkrdgiaaattraicaeadmphgafhy
Cfrskqelytallttglntsldaawpaispdlpavdnvrtmlaafwtafqadpeaelv
Lgelytlaqrepelrelpawqhreyvakavahldrlaeeagfdysvdrallaelvysv
Ldgvasswfshrdgelakasldqfavmfaaltr"
                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="asm29"
9664. .10245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPACAMMEFGHGARAGIGREFEALQEATLVLALVLQREDLALADPDHRUTIKQTLTLKE DSLVVRARERADREGATATVETVVEHOVPATHRHGTELHVFYGSNGGSGEGLARTIAG DSLVVRARERADREGATATVETVVEHOVPATHRHGTELHVFYGSNGGSGEGLARTIAG DGAARGWATSVA FLIDDAVRALPASGEVVIVSSSYNGAPEDNAAHTVRHLTODGEPDLSG VDYLVIGGGGHLDWSATYORVETLIDEAMAAAGARRLRERGATDARADFFGDWERWYED LWFLLSAECGVEVGEIGPRERVVESDAADGLGDLASAVVLERRELVRGEDAGSKRHLE LRLFDGTSYRTGDYLSVLPQNHPDLVRRAVARLGTRAERVVTVESSAPTGLVEVGRAL RVDELLTRCVDLSAPAGAGVVARLAERCECPCPPERAELAATTGATLLELLERREPSCAVD
                                                                                                                                                                                                                                                                                                                                                                                                       /gene-"asm29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VGPAVEEVLGRIGPGAGWLDALRAGGRYATDVF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YAEEFAALGDWLEVDRAYSRHPDGEVRHVQHRLWQRRDRVRELVDAGARVYLCGDATR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LALALELLPAPRTRLYSISSAAEEQRAEVALTVSVTGVTSGYLSRVRPGDRVAVGIAS
PPESFRPPADNTVFVVLIAAGTGIAPFRGFLRARAALGGEPGPALLLFGCRGPELDDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GKAHRLLMPAFGPTAMRDHFPAMLDIAEQMLVRWRRFGPDHRIDVADDMTRLTLDTI!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(6501. .9518)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IVALTFAGQRQVFASSHELVARMCSDPSWGKAVHPALEQVRDFAGDGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="cytochrome p450"
/protein_id="AAM54108.1"
/db_xref="GI:21449376"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="mvatgtripgpkplplvgnlldvltsdldtdvdfldrchrehgg
lvaltfaggrovfasshelvarwcsdpswgkavhpaleovrdfagdglftargdbpnw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QHPARSRGLEGYLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FKFSTYATWWIRQAITRALADOSRTIRLPVHMVEVVTKLÄRIERDLLHRNGREATAEE
VAVELDVTPEKVVELRQHARTPVSLDQTIGAEADTSIGDLIADENAVAPLEAVSSALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RIADGIVAARAALPAGERPDDLLERMLTCADPVTGERLSARNVRYQLATFLIAGHET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="asm30'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'gene-"asm30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sadlravletltpreagyvrmrygfpdgvlhtldevgrvygvtrerirqiesrtmakl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RVVRDGQRAKDHLLEANLRLVVSIAKRYTGKGMALLDVIQEGNLGLVRAVEKFDYAKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mwigysadgrrrrpvrwwgvteaftweidediklaatlrrdaea
anaadstraylkaigrvrlltadqevelarrveaglyaehlldlppaargsrrpvelr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="RNA polymerase sigma factor"
/protein_id="AAM54109.1"
/db_xref="GI:21449377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAM54110.1"
/db_xref="GI:21449378"
/translation="MMITEQNARIPARRSSGRSNARRCAVRWPRPQPRSATRAPGPRS
SANADSRARSRGRDPRTSLNRSA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (4854.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRAGFAPRAFRPVDVRAFDHGGVVTTYRPA®complement(4854. .5057)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APAFALAPDEPAELGGHAIGAGEPVLVMLPTLHRDPAVWRDPDVFDPERFAPERMDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAFGARFNSFYRDRAHPFVDAMVRSLVEAGERAERLPGVQPFLVGRNQRYRDDIATM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="asm32"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="asm31"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="asm32"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3GLLSFAVHRLLAHPEVLRKAKDAVDGVLGDRVPAFEDLARLDYLGQVLRETLRLHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lement(6501. .9518)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .10245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .6461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 6461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       table-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  asm31"
                                                                                                                                                                                                                                                                                                      regulator"
```

```
Query Match
Best Local S
Matches 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                      476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
mes 758; Conserv
                                                                                                                               CGCGCACCTCGGCCCACCCCCACCCCCACCCCGAGCCGCGTCGACCCGTGGT
                                         TGCGCGAGGCCGAGCCTGGTCGGCGGGTTCGCGCTCGGGGACCAGCGCCGGGCCGCCG
                                                                                                                                                                                                                                                                                                         CCCGCGAGCACGCCGAGCTGCCCGACCTGGAGACCTGGCTCTCCCTCGCCTGCCCGC
                                                                                                                                                                                                                                                                                                                                                    AAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTT
                                                                                                                                                                           CGCTCACCGCCTCCCGCCGCCCACACCCCTCCACGCCTCCGCCCCCCCACACCTCCGCCC
                                                                                                                                                                                                                                                    CGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCACCACCAAGAGAGTCATCGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCATTCAACGCTGCGCGCGGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGCGCTCGCCCGACCCCGACGCCCCCGCCCCGCGGGACGCCGCGCGCGCTGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGACTACCTGGACGCGTTGCGGGCCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGG
ACATCGTGGCCGC----GCTGGAGGAAAACCTTCCGCATCGGCCGCGGAGGTGGACGTGCCGG
                                                                                                                                                                                                                                                                                                                                                                                               GCCAGCTGGTCTGGCACGGCGCACCACCGCCGCCGGGCGCGTGCTCGCCGCCTGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCCCGCGCGCTGGCAGCTCAACCCGGCTGCCGCCGCTGTGCCACCTCGACCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCCCACCGCGGACGACGCGGACCAACCGCGGGGCCGTCCCCCCCGCGCGCAGTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCCGACCACGCCCTCGCCGACGACGACGTGCCCACCGCCGTCGCACGGCTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCGACCTGGGCGTGCGGGGGACCGCCATCGCCCATCGGCGATCTGTCGGACGCCG 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGACCACCTCGTCACCGCGGGCTGCCCGGCGCCGGGCCGTCGACGTGCTCGTCG 73810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGCACGTCGCCCGAGGCCGC-----CGCCGTCGCCGGGCCCGCGCTCACCGCCCGGC 73576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCCGCCGTCGCCGCCCACCGGTGCGGGTGCGCGGACCGGACGGCCGCGCCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTCGCCCGGCCTTCATCGACTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product="glucose 1-dehydrogenase"
/product="glucose 1-dehydrogenase"
/protein_id="Aam54105.1"
/protein_id="Aam54105.1"
/db_xref="g1:21449373"
/translation="MPRRLAEQVVVVVGASSGIGRVTALRFAAAGARVVCAARNTRAL
/translation="MPRRLAEQVVVVVGASSGIGRVTALRFAAAGARVVCAARNTRAL
DGLVEEVRGAGGRAVAVTADIADEAAVRAVADVAVEREGRVDTWVNAAGIGVYGRVED
TPAGEFDRVMRVNYLGHVHGAKAALPALRRAGGGVLIGVASVLGLRSAPLQAPYAASK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'translation-"MTDTTTRHRTPVONAALAVGAVFLLVGIAGFVPGLTTNYDGLEF
AGHHSDAALLGVFKVSALHULVHLAFGAAGIAAGLSKAPRGARAFLIGGGAIYAVLWL
YGVVVDEHSTANFVPLNAADNWLHLGLAVGMIGLGAALGRNAAHYRAARSDD"
Complemen (10912 .11937)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(10912.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="asm27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAM54106.1"
/db_xref="GI:21449374"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="asm27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 116; DB 1;
Pred. No. 0.00011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .11937)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 82746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                           73336
                                                                                                                                                                                                                                                                                                                                                                                                  73396
                                                                                                                                                                                                                                                                                                                                                                                                                                           535
                                                                                                                               73216
                                                                                                                                                                                                                                                               655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           415
                                                                                                                                                                                                                      73276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
```

ş 밁 Ş 밁 Š 밁 Ş 밁 Š 밁 õ 밁 Ş 밁 Ş 밁 Š 밁 Ş 밁 Ş 밁 Š 밁 5

RESULT 13
SC6A11
LOCUS.
DEFINITION
ACCESSION

SC6A11 28751 bp Streptomyces coelicolor cosmid ( AL138978 AL645882

р DNA 6All.

linear

BCT

12-MAY-2002

```
吊
                          Š
                                                        밁
                                                                                Š
                                                                                                            밁
                                                                                                                                       Ş
                                                                                                                                                                  밁
                                                                                                                                                                                           Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                       S<sub>2</sub>
                                                                                                                                                                                                                                                                                                                                     멼
                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
  72198
                                                       72258
                                                                                                            72318
                                                                                                                                                                                                                        72438
                                                                                                                                                                                                                                                                             72498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72975
                                                                                 1664
                                                                                                                                       1604
                                                                                                                                                                  72378
                                                                                                                                                                                             1544
                                                                                                                                                                                                                                                   1484
                                                                                                                                                                                                                                                                                                                                     72555
                                                                                                                                                                                                                                                                                                                                                                                         72615
                                                                                                                                                                                                                                                                                                                                                                                                                                             72675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72915 GGCACGCCCGCGCGCGCTCGACGCCGTCCCCTCGCACGGCTGGGGCGCGTCCGTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73155 CCGAGGCCGCGCATGCTGCGCCACGCCCACCTCAGCCACCTCCCCGTGGTCCGAGG 73096
                                                                                                                                                                                                                                                                                                        1424
                                                                                                                                                                                                                                                                                                                                                               1364
                                                                                                                                                                                                                                                                                                                                                                                                                    1304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1130 CCGACGGCCTGCCGCAC--GACGAGCGCCCGCATCCGCGCCCTGTGGGGCAC----CTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1070 TCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCGACCATGATCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1010
                          AGCTGGGCCAGATCGCCCTGAGCTACGAGAAGCT 1757
                                                                                                                                                                                                                                            CCCTGGCCGTCACCGGCCTCACCAACCGGCAGAT 72165
                                                    CGGCCGACCCCGTCGAGCACGACACCAGCGGCCTCACCGGCTCCGAGCGCAAGGTCGCCG
                                                                             TGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCG 1723
                                                                                                        CCTGGCACCTGGCCAGGGCGTGTGGCGCGCGCGCGCTGTGCGCGCCTGGAACCGGACG
                                                                                                                         CAACCCTGGACGCAAACCGCTACATGGCCCCCTCCCTCCGCTCGCAATACGGCCCCACCCG
                                                                                                                                                                                                                    CCGCCGACGCCTGGAGCGCTGCGGTGACCGCTACGAGCTGGCCGCCACCCTCGCCTGCC
                                                                                                                                                                                                                                                                         CGCTGCGCGCGCCCCCCCCCCCCCCGCCGACCCGCCCCCCCACCTGCTCGCCGAGG
                                                                                                                                                                                                                                                                                                 TGGTGTTC---GACCAGCTCGCCACGACCGGCCGCCGACGCGGCCGCCCCAGGGCGCTGG
                                                                                                                                                                                                                                                                                                                                                       TCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                     GGCGCACCGGGGCCGAGGCGTGGACCCGCCTGGGCAACCACGACCGCGCCCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                CCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCT 1363
                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCTGGCGTGCGGCGACCTCCTGCGCTCGTGGGGCCTCGACCTGCCCGGCCTCGCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCACGCGCGCGCCACCACCACCTCGCGTCCGGGCGGGACCACGCGGCGCTCGCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGGGTGCTGGGCACTATGCGCGCGCACCTGGGCCTGTTCCCGCTGGAGACGGCGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCACGTCACCGCGCCCGTGCCGGACGCCCTCTTCGACGGCCCCGCCGCCCCCGCACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGTGCAAGCCCTTCCCCGAACT---GAGCGGGCGCGACCTGGATGAAGTCGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCA 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACCCGCGCTCGCCCTGCTAGCCCTGGTGCGCGCCGACCGCGCCGCCGACGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCGCTGATCGAGGCCGCCATGGCGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACG
                                                                                                                                                                                         1603
                                                                                                                                                                                                                                             1543
                                                                                                                                                                                                                                                                                                                                                           1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1303
                                                    72199
                                                                                                          72259
                                                                                                                                                              72319
                                                                                                                                                                                                                    72379
                                                                                                                                                                                                                                                                         72439
                                                                                                                                                                                                                                                                                                      1483
                                                                                                                                                                                                                                                                                                                                                                                      72556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1069
                                                                                                                                                                                                                                                                                                                                72499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   892
                                                                                                                                                                                                                                                                                                                                                                                                                                         72616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73036
```

RBS

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEMED
                                                                misc_feature
                                                                                                                                                                                                                                                                                               IMPORTANT: This sequence MAY NOT be the entire insert of the sequenced clone. It may be shorter because we only sequence overlapping sections once, or longer, because we arrange for a small overlap between neighbouring submissions. Cosmid 6All Lies
                                                                                                                                                                                                                                                                                                                                                                                                                                        jun/cgi-bin/framepiot.pl. CAUTION: We may not have predicted the correct initiation codon. Where possible we choose an initiation codon (atg, gtg, ttg or (att)) which is preceded by an upstream ribosome binding site sequence (optimally 5-13bp before the initiation codon). If this cannot be identified we choose the most
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in codons is given for each CDS.

Osually the highest scoring match found by fasta -o is given for CDS which show significant similarity to other CDS in the database. The position of possible ribosome binding site sequences are given where these have been used to deduce the initiation codon. Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                     upstream initiation codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The more significant matches with motifs in the PROSITE database are also included but some of these may be fortuitous. The length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (URL; http://www.sanger.ac.uk/Projects/S_coelicolor/) CDS are numbered using the following system eg SC7B7.01c. SC (S. coelicolor), 7B7 (cosmid name), .01 (first CDS), c (complementary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 1sA E-mail: barrell@sanger.ac.uk Cosmids supplied by Prof. David A. Hopwood, [3] John Innes Centre, Norwich Research Park, Colney, Norwich, Norfolk NR4 7UH, UK

On May 9, 2002 this sequence version replaced g1:6941966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              available on the World Wide Web.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptomyces coelicolor sequencing at The Sanger Centre is funded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Details of S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (03-FEB-2000) Streptomyces coelicolor sequencing project, Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oliver, K. a. Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces coelicolor A3(2).
Streptomyces coelicolor A3(2)
Bacteria; Firmioutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Streptomycineae; Streptomycetaceae. ct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6-phosphofructokinase; pta, phosphate acetyltransferase; secreted nucleosidase; sodium:dicarboxylate symporter; transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Redenbach, M., Kieser, H.M., Denapaite, D., Eichner, A., Cullum, J., Kinashi, H. and Hopwood, D.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l (bases 1 to 28751)
Redenbach, M., Kleser,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  regulator; trxA2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q1ycoq-amylase; g1gBI, 1,4-alpha-glucan branching enzyme;
g1ycoq-phosphorylase; integral membrane transport prot
f-phosphory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alpha-amylase; glgBI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AL138978.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            et of ordered cosmids and a detailed genetic and physical map
the 8 Mb Streptomyces coelicolor A3(2) chromosome
.Microbiol. 21 (1), 77-96 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases
                                                                                                                                                                                                                                                       and overlaps with cos
restriction fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      et al., Gene 30:157-66(1984) as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               lon is based on positional base preference in codons using ly developed Hidden Markov Model (Krogh et al., Nucleic search, 22(22):4768-4778(1994)) and the Framerlot program
/note="Nominal overlap with Streptomyces coelicolor cosmid
                                                                               /db_xref="taxon:100226"
/clone="cosmid 6A11"
                                                                                                                                         /organism="Streptomyces
/strain="A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2002 this sequence version replaced g1:6941966.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 to 28751)
D., Parkhill, J., Barrell, B.G. and Rajandream, M.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 to 28751)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and Beowulf Genomics
coelicolor sequencing at the Sanger Centre are
                                                                                                                                                                                                                              Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomycineae; Streptomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thioredoxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integral membrane transport
                                                                                                                                                           coelicolor A3(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                two-component sensor kinase/sensor
                                                                                                                                                                                                                                                                               3D11 on
                                                                                                                                                                                                                                                                         the AseI-B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ¿yme; gigP,
protein; p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces
```

```
misc_feature
/gene="SC6A11.04c"
/note="scar"
                                                                                                                                                       RDFLDRIVDHFWTAVERHP"
                                                                                                                                                                                                                    /translation="mwrvrrpspgpsqsgppfnalaarrlraalnmgpehvahgirvs
Yglpyvspdlviawergtalpegpeltalagvlwcspgeligrpqslrehrvarglap
                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="SC6All.03c, unknown; database similarities"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(3153. .3866)
                                                                                                                                                                                                                                                                                                                    'product="hypothetical protein SC6A11.03c'
'protein_id="CAB72403.1"
'db_xref="G1:6941969"
                                                                                                                                                                                                                                                                                                                                                                                                                         codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="PS00433"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Pfam match to Phosphofructokinase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Pfam match to entry PF00365 PFK, Phosphoffuctokinase, score 278.20, E-value 1.6e-101"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gvptaydrvlatrfgwhaveaahrgdfgrwtalrgtdvvwvplaeavtelktvpkdry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORYMVYEVMGRHAGNIALESĠMAAGAHGICLPERPFDPADLVKMYEERFSRGKKFAVV
CVAEGAHPAEGSMDYGKGAIDKFGHERFQGIGTALAFELERRLGKEAKPVILGHVORG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note-*SC6A11.02, pfkA2, 6-phosphofructokinase, len: 341
aa; similar to many e.g. Sw:059126 (PFP_AMYRE)
6-phosphofructokinase from Amycolatopsis methanolica (352
aa) fasta scores; opt: 1274, z-score: 1463.6, E(): 0,
59.1% Identity in 342 aa overlap. Also similar to
TRNEW:CAB51967 (EMBL:AL109661) pfk, 6-phosphofructokinase
from Streptomyces coelicolor (342 aa) fasta scores; opt:
1251, z-score: 1437.4, E(): 0, 56.7% identity in 342 aa
1251, z-score: 1437.4, E(): 0, 56.7% identity in 342 aa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EGTLTAARMLSDAGLPVVGVPKTIDNDISSTDRTFGFDTAVGVATEAMDRLKTTAESH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="SC6A11.02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'translation-"mrigvltaggdcpglnavirsvyhravdnygdevigfedgyagl
.Dgryraldlwavsgilarggtilgssrlerdrlreacenagdmiqnfgidalipigg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r-vuuct="6-phosphofructokinase"
"protein_id="CAB72402.1"
"db_xref="GI:69410cc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="SWISS-PROT:Q9L1L8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nominal overlap with Streptomyces coelicolor cosmid 8F4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hosphofructokinase signature"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="SC6A11.02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'note="SC05426;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="Pfam match to entry PF01515 PTA_PTB, Phosphate cetyl/butaryl transferase, score 460.50, E-value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hosphofructokinase and Prosite match to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lement(1975. .1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 2804
                                                                                                                                                                                                      GLPAYLRMEESDDWRGTDRQSAQLADVLGLTLPDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contains two Pfam matches to entry
                                                                                         .04c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phosphofructokinase signature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entry
score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF00365 PFK,
52.20, E-value 9.9e-19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   len: 237 aa; no significant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00365 PFK,
```

gene

/note-\*SC6All.04c, possible integral membrane transport >rotein, len: 296aa; similar to many proposed transport >roteins e.g. TR:Q9X9Y6(EMBL:AL096743) putative integral

CDS

gene

misc\_feature

misc\_feature

misc\_feature

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Sinhes 756;
                                                                                                                                                                                                                                                                                                                                                                                               66 GCTGCTCGCGGGCACCCTCATCGACGGCAGCACACCCCGGGGCGGCGGCGCCGACCT 125
                                                                                                                                                                                                                                                          CTCCGGGCAGGGCCACACCACATCGGCCGCATCGGCCTGCGGCGGACGACGCCGAACGCAC
                                                                                                                                                                                                                                                                                                          GGGCGTGCGCGGCGATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACAC
CACCCGATGGGGCTGCGCCGCCGCGCACATCACCAGCGAGGGCCGCACGGTCACCGC
                                                                                                                                                  CCCCGTCCTCATCGACTGGCGGGCCGGTGTCGCCCGCCCCTTCTACCTGGCCACCGGCCA
                                                                                                                                                                                                         CCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCTTCATCGACTCGCACAC---CCA
                                                                                                                                                                                                                                                                                                                                                              GCTGCTCGCCGCGCTCAACGCGGTGGACGGCTCCCTCTGCTTCGGCCGGATCGACCTCAC 16706
                                                                                                 CGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note-"SC6All.05c, possible integral membrane transport protein, len: 313 as; similar to many proposed transport proteins e.g. TRNEW:CAB55533(EMBL:ALI17322) putative integral membrane transport protein from Streptomyces coelicolor (317 as) fasta scores; opt: 561, z-score: 649.2, E(): 9.4e-29, 34.4% identity in 314 as overlap. Contains Pram match to entry PF00528 HpD_transp. Binding-protein-dependent transport systems inner membrane component, Prosite match to PS00402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Binding-protein-dependent transport systems inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="putative integral membrane transport protein"
/protein_id="CAB72405.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   membrane transport protein from Streptomyces coelicolor (298 aa) fasta scores: opt: 515, z-score: 609.9, E(): 1.5e-26, 33.9% identity in 295 aa overlap. Contains Pfam match to entry PF00528 BPD_transp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="SC6A11.04c"
/note="psnoin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Binding-protein-dependent transport systems component, score 53.20, E-value 5.7e-12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /LPLAWVVLSÄLDPHASLRVKYPDGYTLDNFDAILTPBITFTPLLNSLILCGGATLLT
VYCAVLAAYPLSRFRSRLNRPFLLTILFATSLPITAIMVPVYALFVRVNMIDTMQGTI
FFFAASQLPFAIWLMKNFMDGVPKELEEAAWTDGASSFQSLLKIVLPLMGPGVAVYTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comp sign. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Binding-protein-dependent transport systems inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Binding-protein-dependent transport systems inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(4870. .5811)
gene="SC6A11.05c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="SC6All.04c"
'note="rf--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product-"putative integral /protein_id-"CAB72404.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     component, Prosite matches to PS0040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="SC6A11.05c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nner membrane comp sigomplement(4870. .5811)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="PS00402 Binding-protein-dependent transport systems
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'db_xref-"SPTREMBL:Q9L1L6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ranslation="MTDTVAPRPASRTSRAARRTTPAARRNRRRTAADAGLLVAAAAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MMWGNFFVPFMLLLSPDQMPASVSINDFFGNRGMVAYGQLAAFSIVYSTPVVLL
SRRLGGGFALGGAVKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              xref="GI:6941970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           start-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            am match to entry PF00528 BPD_transp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and possible membrane-spanning hydrophobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>;</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 107.4; DB Pred. No. 0.0014; 0; Mismatches 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            possible membrane-spanning hydrophobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       membrane transport protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                             185
                                                   16886
                                                                                                                                                        16826
                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                            16766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
```

gene

CDS

밁 Ş В Ø. 밁 ş 밁 б

16827

16767

16707

126

16647

Matches

S

```
Ş
                                                        밁
                                                                                       Ş
                                                                                                                             밁
                                                                                                                                                            S.
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밓.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        먑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                               17816
                                                                                                                                                                                                 17756
                                                                                                                                                                                                                                                                     17706
                                                                                                                                                                                                                                                                                                                                 17646 CGCCGTCGACCGGCTGTGGCCCCGGCTCACGCCGCAGCGCCTGGTCGCCGACCTCCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                            17586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16887 GCTGCACGAGATCCTCGACCTCGGCGACGAGGGCGCCACCGGCCACGAGGACCCCTC
                     1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17007
                                                                                                                                                              1253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16947
                                                                                                                                                                                                                                  1194
                                                                                                                                                                                                                                                                                                     1134
                                                                                                                                                                                                                                                                                                                                                                         1074
                                                                                                                                                                                                                                                                                                                                                                                                                                            1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
CCGGCCTGACCGCCGCGCCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACT
                                                                                                                                                                                                                 GGGGCACTATGCGCGCGACC-TGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGA
                                                                                                                                                                                                                                                                     CGCCC-----
                                                    CCTACGCGCAGGGCGTCCTCGACGTGTCGTACGCGTCCCGCACCTACGAGTTCGAGGACA 17935
                                                                                                                          TCGGCGTCGACGACCGGATCGCCCCCCCCCCCCGAACGCGAGCGGGAGCAGATCG
                                                                                                                                                                                            CGGTCACCCGGCGCTGGACCGTCGCCGACGTGCCCCTGCTGGACGACGACGCCGCAACTGC
                                                                                                                                                                                                                                                                                                                                                                                                    CGACCCCAGCGACATCACCCAGATCCGCGACGAACTCGCCGAGAACCCCCGAGGTCTGGTC 17645
                                                                                     TCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACC
                                                                                                                                                                                                                                                                                                  CGGCCTGCCGCACGAGCGCCCCGCATCCGCGCCTGTGGGGGCACCTTCCCGCGGGTGCT 1193
                                                                                                                                                                                                                                                                                                                                                                   GATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGA 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTCACCGACATGGTCGCCGAGCGCATCGGCACCGACCCCTACGACGGCAGCAACCTCCT 17585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCG 1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACCGCGACATCCTCATGCTCGACGACGACCTGGTCAACGTCGCCCGCGAGCGCACCCG 17465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGATCGAGGCCGCCATGGCGCCCAGGAC---GTCTCGCTGGACGCGTATCCCTACGT 893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCCTGCACCGCGCCTACCTCCTCTACGAGCACCGCGAACTGCTCGCCAAGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTA 422
                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCGCCAAGCTGCCGCACAACGCGGGCCCGCGAACACTTCGAGGGACACATCCTCAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCAC 953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCGCGGAGGCGGTCCGCCCGGCAGGCACTGCCCGACCCGGTGATCGCGATCGAGCA 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCCGCGCGAGACGCTGCC 836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACGGCGACGGCCCCCCGAGGCCGGCCGTGAAGGGCCCGGGCCGAGATGGCCGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGAGCTGGACGTGCCGGTGGT 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCGGCGAGACCGGCGTGCTCCTCGCCACCGTCGGCGAGCTGTTCCCCGGCGTGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGAGCGCGCATGGCGGCATCTACGCCACCCACA----TGCGCGACGAAGGCGAGCA 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTCCTCATCGTCGGCCCCAACCCGGCCTTCCTCGGCTACATCGGCGAGGTGCTGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCTTCTACCCGCCGCCGCCGCGCGCCACCGAAGAGATCATCGAGGTGTGCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACGCTGCGCGCGGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTGCAGACCATCCAGGCCGACCAGGACCGCATCATCCGCGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTGGACGCGTTGCGGGGCCACGCCGGCGGCGGCCTCTATGGTGGGCCCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGACGCCGTGCTGCTCGCCGCGCGCGCGCGCGCACCGGCCATGGGCGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----CCGCACCGCGCGTCCTGGTCGTCGAGGGCGGCCCCGGCACCGGCAAGACCGCCGT
                                                                                                                                                                                                                                                               - CGGAGTCCTTCCTCCCGCGAGGACGCCGCCGCCGTCCGCCGCC
                  1432
                                                                                       1372
                                                                                                                                                           1312
                                                                                                                                                                                                                              1252
                                                                                                                                                                                                                                                               17755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17525
                                                                                                                        17875
                                                                                                                                                                                             17815
                                                                                                                                                                                                                                                                                                                                   17705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16946
```

밁

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
AE006004/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                             gg
                                                          gene
                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17936 AGGACGAGGACGCCGAGGTCCTGTCCGCGCACGACATCATCGACGCCCGAGCGCTTCG 17995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1613 GCAAGGAAGTGATGGGCGCGCGCCTGCGCGCGCGAAGGGCCCGGGAAAATGACCCTGC 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1493
                                                                                                                                                                                                            2 (Dases 1 to 14710)
2 (Dases 1 to 14710)
Nierman, W.C., Feldblyum, T.V., Paulsen, I.T., Nelson, K.E., Eisen, J., Heidelberg, J.F., Alley, M.R.K., Ohta, N., Maddock, J.R., Potocka, I., Nelson, W.C., Newton, A., Stephens, C., Phadke, N.D., Ely, B., Laub, M.T., DeBoy, R.T., Dodson, R.J., Durkin, A.S., Gwinn, M.L., Haft, D.H., Kolonay, J.F., Smit, J., Craven, M., Khouri, H., Shetty, J., Berry, K., Utterback, T., Tran, K., Wolf, A., Vamathevan, J., white on a salzberg, S.L., Shapiro, L., Venter, J.C. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTCGC 18296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGATCGC 1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGACCGCTGGGAGCACCCCGCCTCGGCGTCAACTACCGCACCCCGGCCGAGGTCATGG 18289
                                                                                                                                            Submitted (31-JAN-2001) The Institute for Genomic Research, Medical Center Dr. Rockville, MD 20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCAGACCGCGGAGGCCGGCCGGTTCGGCTCCTGGTCGAAGATCCTCGCCCCCTACGTCG 18229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGGCGGCTGCTCATGCGCCGCTGCCCCACCCGCTCGATGACCCTGGTCGGCGACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGGCGTTCGGGCACATCATCGTGGACGAGGCGCAGGAGCTGTCCC-----CGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nierman, W.C., Feldblyum, T.V., Laub, M.T., Paulsen, I.T., Nelson, K.E., Elsen, J., Heidelberg, J.F., Alley, M.R.K., Ohta, N., Maddock, J.R., Potocka, I., Nelson, W.C., Newton, A., Stephens, C., Phadke, N.D., Ely, B., DeBoy, R.T., Dodson, R.J., Durkin, A.S., Gwinn, M.L., Haft, D.H., Kolonay, J.F., Smit, J., Craven, M., Khouri, H., Shetty, J., Berry, K., Utterback, T., Tran, K., Wolf, A., Vamathevan, J., Ermolaeva, M., White, O., Salzberg, S.L., Venter, J.C., Shapiro, L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome.
AE006004 AE005673
AE006004.1 GI:13425161
                                                                                                                                                                                                                                                                                                                                                                                                 Complete genome sequence of Caulobacter crescentus
Proc. Natl. Acad. Sci. U.S.A. 98 (7), 4136-4141 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          I (bases 1 to 14710)
Nierman, W.C., Feldbly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; alpha subdivision; Caulobacter group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caulobacter crescentus CB15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Caulobacter crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE006004
                                                                                                                                                                                             Submission
   complement(86. .892)
/gene="CC3444"
                                      /gene="CC3444"
                                                                  /db_xref="taxon:190650"
                                                                                        /organism="Caulobacter crescentus CB15"
/strain="CB15"
                                                                                                                                          Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14710 bp I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
n 330 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear BCT 12-JUN-
359 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 12-JUN-2002
                                                                                                                                                                  9712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18109
gene
                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                 Sdo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sdo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
```

```
complement(4106, .5638)
/gene="CC3449"
                         YARRLASVIANLAAGVSGDGAPKLLAGTGRDDRHLVVVAAADBGLAGGETSSIVRAAR AHIDGLIAGGKDVRVVCVGKKYTAQLAKPYAGRIVETFDLSSYRQLTLSVAQPIADVITREERAGETDVTLFYSFEKSVVQQIFTGLQLIPAVVETGEAASGPTAVYEYEBSEEA ILETLLPRNLTVQILSALLDNYAGFYASQMTAMDNATRNAGDMIKRYTLEYNRSRQAQITKELLEIISGAEAV
                                                                                                                                                                                                                                                                                                                                                                                            GEYDHLPEGAFYMVGPIEEAVAKAEKMAAEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                 -GRIPSAVGYOPTLATEMGNLQERITSTNKGSITSVQAIYVPADDLTDPAPATSFAHLD
ATTVLSRDIAAQAIFPAVDPLDSTSRIMDPLVIGEEHYTVARRVQEVLQQYKALKDII
                                                                                                                                                                                                                                                                                                                                                                                                          AILGMDELSEEDKLVVARARKIQRFLSQPFHVAEQFTNTPGAFVQLKDTIRSFKGIVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEVAQHLGQSTVRAIAMDATEGLVRGQPVRDTGEPIRVPVGPGTLGRIMNVIGEPIDE
QGPIRSDISRTIHRDAPSFAEQTNTAEVLVTGIKVIDLMCPYTRGGKIGLFGGAQVGK
TVTMQELINNIAKAYGGYSVLAGVGERTREGNDLYHEMIESNVNVDEKANNGSTEGSR
                                                                                                                                                                                                                                                                                                                               complement(3196. .4071)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CALVYGQMNEPPGARARVALTGLSIAEYFRDEEGKDVLLFVDNIFRFTQAGAEVSALL
                                                                                                                                "translation="MASLKEMRNRISSVKATQKITKAMQMVAAAKLRRSQDAAESARP
                                                                                                                                                                       /product="ATP synthase F1,
/protein_id="AAK25410.1"
/db_xref="GI:13425166"
                                                                                                                                                                                                                                                                            /note="identified by match
                                                                                                                                                                                                                                                                                                                 /gene="CC3448"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="maktpaekpataakkpaapkaaaapkaaaakapaaakapaakkp
aapkaaaapkapaaglegatgrlyqiigavydiefdgalpailnavetyntatggrly
                                                                                                                                                                                                                                           transl_table=11
                                                                                                                                                                                                                                                              codon_start-
                                                                                                                                                                                                                                                                                                                                                             /gene="CC3448"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="ATP synthase F1, /protein_id="AAK25409.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(1529. .3148)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(1529. .3148)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MTEDADLANFCCDELAEAVSPDANAGLIEHDSGLILLNLGEREE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'db_xref="GI:13425165"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note-"identified by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="CC3447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /genemmcC3446"
/note="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(1278. .1529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    transl_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="CC3446"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _regkvtvkdgattkvfdiqggfadvgpegltilaehaveaa=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SDFRRFTVSWDDAWAGGRAGLVYMRLKKLDETSVGKNFERAQILYSTTSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="Mylisahkgcegpsvgfnavisscwgylayapcarqodrtrprd
WGRCRFHRRRSGTNKRSGPAAPPAQAPAAPAAQAAPAQAAPAQAAPVAAPAAETAPAAD
TYVAPVRGPRTTDPFTVRLLDVLDKYCKPQVAGGDFAQIVKSYGFKKKREQWVFALEK
PFNVTLDNPGSNKNVCTVTIDYSQAPEQAQELANGLHDWATWENSPQIRLIRNDQTVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref='
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="CC3445"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "translation="MAKLHFSLVAPERELFSGEVDMVQAPGAEGDFGVLANHAPFWTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'protein_id="AAK25407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           product-"ATP synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            trans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'Codon_start-]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note-"identified by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ′gene≖
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="GI:13425163"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical
d="AAK25408.]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1018.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .1278)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein'
                                                                                                                                                                                                             gamma subunit"
                                                                                                                                                                                                                                                                                ៩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ៥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         epsilon subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ៥
                                                                                                                                                                                                                                                                            protein family HMM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein family HMM'
```

CDS

```
gene
                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                         /translation="mrfafsGiadLspdaarpgwnraikpgoivDpalGigvDgalf
DHALGAGVAAVLADPALDAVGGQHGSRTGGIGEGAHQGGHGRADEGGGHRPDRADPpf
                                                                                                           /product="hypothetical protein"
/protein_id="aak25415.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(6831, .7283)
/gene="CC3452"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MDGRRCRAAPSEAARLITRAFRSRNQRGATERSLRPRSDGISPR
PRPPAPRRRGAVHPARRSGSWWRVPPRPCRQGRQRSRPRHSRRSARRARRPRLRPCRE
RIPVGRRGSCPWYSTSPVAGKEKEAAGGPAAP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5691. .6245)
/gene="CC3450"
.EDGLQTIDQKLAVRLLLHHPDHPEDGALDNRGQQHRQHHAQNTRSDKQSERCADDRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNVQAGEMLEFPKAGYKGMALNLERDNYGAVIFGQDQBIKEGDEVRRLGEIYDYPYGR
GLLGRVVNPLGEPIDGKGPIQYTERRRVDYKAPGIIPRKSVHEPVQTGLKSIDYLIPV
GRGQRELIIGDRQTGKTAVAIDTILMQKAVNAGKDESAKLYCYYVAIGQKRSTVAQIV
KTLEEHGALEYTTVVVASASEPAPLQYLAPFAGCAMGEWFRDMGLHGLIIYDDLSKQA
                                                                                    db_xref="GI:13425171"
                                                                                                                                                            transl_table=11
                                                                                                                                                                                   codon_start-
                                                                                                                                                                                                          note-"identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      {	t RGYLDGIPTSSVRRFEAEFLARLHSQHADLLEGIRTKKALDKDLENTLKSALDSFSST}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VSAYIPTNVISITDGQIFLETDLFYQGIRPAVNVGISVSRVGSSAQIKANKQVAGPIK
GELAQYREMAAFAKFGSDLDASTQKMLARGERLTELLKQPQYAPLSVEEQVCVIYAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VAYROMSLLLRRPPGREAYPGDVFYLHSRLLERAAKLNEDNGSGSLTALPIJETQAND
                                                                                                                                                                                                                                                                                                                                               translation-"MLSSDPKHRWGYRRRHPRGRAASTRISPILDLTATSPKPEGFLM
LRSLAAVAALSVSMFAGSAFADGRIAAALDAPVAAKTKVVAGGAVFVCEGTECVSAQ
                                                                                                                                                                                                                                                                                                                                                                                                                              product="hypothetical protein"
protein_id="AAK25414.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /GSRLFDASLRSKLDSLKFALKRA*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(5691.
                                                                                                                                                                                                                                                                                                                          PSRALTAAACKALAKEVGRVAAFGGETKSLDAEDLARCNASAKVAAK*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="CC3451"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="CC3451"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'note="identified by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translation-"MDIRAAEISAILKSQIANFGEEAAVSDVGQVLSVGDGIARIYGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="ATP synthase F1,
/protein_id="AAK25411.1"
/db_xref="G1:13425167"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="CC3449"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (4106.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           odon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note="identified by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ote="identified by Glimmer2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ransl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ranslation="madetkatdagqryaqslfeltiengslokveadlkslkanvad
Dlrrliaspafsaedkgkgltavakkagfqplttkflglvaangrtgdllgaisaf
LSakhrgyvtaevysaaalspaolkgvqtalaqalgktpevstrvdpsllgglkyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  duct="ATP synthase F1,
tein_id="AAK25412.1"
                                                                                                                                                                                                                                                                                    13453
                                                                                                                                                                                                    by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .7283)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .6245)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .5638)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ai protein."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    delta subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alpha subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein family HMM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein family
```

```
REFERENCE
AUTHORS
                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
AX211705
                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                  CEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 5.6
Best Local Similarity 55.5
Matches 213; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14312 ATCACGACCGCCTGATCCGCCTGATGGAAGGCGTCGAGGACATCCCCTTTCCCGTGCTGA 14253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14432 ACACCCACTATGACGGCCAGGCGACCTGGAGCGGTCAGCTTGGCCCCAGCTCCGGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14609 CCTACGATCTGGTCCTGCGGGGGGGGGGGGGGGGGGGGTTCC
                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116 GCGCCGACCTGGGCGTGCGCGGCGACCGCCATCGCCGCCATCGGCGATCTGTCGGACGCCG 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              416 CCGACTACCTGGACGCGTTGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176 CCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTCGCGCCCGGCTTCATCGACTCGC 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236 ACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGG 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAGGGCCTGCCCTGGGCCTGGG 14229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTGACCACGGTGGTGATGGGCCAATTGCGGCGTCGGCCTTCGCGCCGTGCCGTCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCA 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCGAGGA---GATCGACGCCCGAGGGCGGATCGTCACCCCGGGCTTCGTCGATATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCCGATGTCGGCGTGCGGGACGGCGTCATCGTCGCGGTCGGCAAGGGCCTCGCCGCCG
                                                                     Norges Teknisk Naturvitenskapelige Universitet (NO); STIFTELSEN IND OG TEKNISK FORSKNING VED NORGES TEKNISKE HOGSKOLE (NO); ALPHARMA AS (NO); Sinvent AS (NO); Zotchev, Sergey Borisovich (NO); Sekurova, Olga Nikolayivna (NO); Fjaervik, Espen (NO); Brautaset, Trygve (NO); Strom, Arne Reidar (NO); Valla, Svein (NO)
                                                                                                                                                                          Gene cluster encoding a nystatin polyketide synthase and manipulation and utility Patent: WO 0159126-A 1 16-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1 from Patent W00159126.
                                                                                                                                                                                                                                      Gulliksen, O.M.
                                                                                                                                                                                                                                               Zotchev,S.B., Sekurova,O.N., Fjaervik,E., Brautaset,T., Stroem,A.R., Valla,S., Ellingsen,T.E., Sletta,H.V. and
                                                                                                                                                                                                                                                                                                                                           Streptomyces noursel
                                                                                                                                                                                                                                                                                       Bacteria; Firmicutes; Actinobacteria; Actinobacteridae; Actinomycetales; Streptomycineae; Streptomycetaceae; St (bases 1 to 65140)
                                                                                                                                                                                                                                                                                                                                                          Streptomyces noursel.
                                                                                                                                                                                                                                                                                                                                                                                                   AX211705.1
                                                      Location/Qualifiers
/organism="Streptomyces noursei"
/db_xref="taxon;1971"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/trans1_table=11
/product="acyl-CoA dehydrogenase
/protein_id="AAK25416.1"
/db_xref="GI:13425172"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="identified PF00441"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="CC3454"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rgene="CC3454"
1951. .9258
                                     .65140
                                                                                                                                                                                                                                                                                                                                                                                                 GI:15523937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 99.2; DB 1;
Pred. No. 0.014;
0; Mismatches 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                by match to PFAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ·linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 14710;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAT 06-SEP-2001
                                                                                                                                                                                                                                                                                                    Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ښ</u>
                                                                                                                                                         STIFTELSEN
                                                                                                                                                                                                               its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
```

11455

BASE COUNT

8270 a

```
Ş
                                                      밁
                                                                                   S
                                                                                                                     뭥
                                                                                                                                                  S
                                                                                                                                                                                    문
                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 5.6%;
Best Local Similarity 43.5%;
Matches 724; Conservative
                                     20418
                                                                                                                                                                                    20478
                                                                                                                                                                                                                                                                                                                                                                 20298 TCACCACCTCACCACCACCACCACCAGGGCGCCCCGTCCCCGACGCCGCCGCCACCACCACCG 20357
                                                                                                                                                                                                                                                                                                                  20358
                                                                                                                                                                                                                                                                                                                                                                                                                                                 20238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20178 TCCTCGGCCCGACCCGGACGCCCTCGCCGACACCCCTCCGCGCCACCGGCATCCGGACCA
1022 CCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCGCGCCCATCTTCATGATGGACG 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19998
                                                                                                                                                  902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19758 CCTGGCGCGCGACACCGAGGTCTACGCCGAAGTGGCCCTGCCCGACGGCGCGGACACCG 19817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                      CCGACACCGGCCGGCCGACCCCGAGACCCTGGC-----CACCGCCCTGGCCGAGCC
                                                                                                                                   CCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCA 961
                                                                                                                                                                                                   TCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCT
                                                                     GCCTGATCCGCACCGCACCGAGAACCCCGGCCGTTTCGCCCTCCTCGACCTCGCCC
                                                                                                                                                                                                                                  CGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGA
                                                                                                                                                                                                                                                                                                 TGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGGGCTGGACGTGCCGGGTGGTGATCT 781
                                                                                                                                                                                                                                                                                                                                                                                         CGCTGAGCGCGATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGGCACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCCCCCCCGCGACCTCGCCCTCGCCGACGCCGAAGGGCCCGTCCCCGACCTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCCTTCTACCCGCCGCCGCCGCGCGCCACCACCGAAGAGATCATCGAGGTGTGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCATGGGCATCGGCATTTCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCACGTCGAGTGGACCCCGCTCCAGGGCCGCCCGGGCCCCGCACCGGCCACCGTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGCCCCCTGGACCTGCTGGACGAAGGGGGCTCTTACCGTTTCGAGCGCTTCGCCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAACGCTGCGCGCCGCGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCACCATCGCCGTCTACGACGCCGCCGGCGCACCGTGCTGCTCCGTCGACTCCCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCGCGAGGTCCCCGCCGACGCACCCCGGCGCGCCACCGTCCACCGCGACTCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCCAACGCCAACCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGCCGACCTCGGCGCCATCAGCCGGGGGGGGGCCTGCGGTTCGGCCTGGGAAGGCGTCTCGC 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCTGGGCGTGCGGGGACCGCATCGGCGATCGGCGATCTGTCGGACGCCCGCGCCC 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCIGCIGCICGCGGGCGCACCCICATCGACGGCAGCAACACCCCGGGGCGGCGCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCCGCCGTCGGACTGCACCCGGCCCTGCTGGACGCCGCACAACACGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCC 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGAGCGCCTGGCCACTCGGCTTCCAGTACGGCCCCGCCTTCCAGGGCCTGCGCGCCG 19757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25171 c 22273 g 9426 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 99.2; DB 6;
Pred. No. 0.0082;
0; Mismatches 913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 65140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27;
                                                                                                                                                                     20537
                                                                                                                                                                                                                                                                    841
                                                                                                       20591
                                                                                                                                                                                                                                                                                                                                                                                                                                    20297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20117
                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ū
```

밁 Š 밁 Ş Š 밁 밁 Ş В 밁 õ 밁 Š 밁 Š 밁 S 밁 Ş 밁 21300 TGACCCTGGAACAGGGCACCGCCCTCTTCGACGCGGCCCTGGCC 21343 21240 21180 21120 21000 1673 AAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCC 1716 1556 20940 TCGTCGTCCACACCGCCGGCGTCGTCGACGACGGCGTCCTCGGCTCCCTCACCCCGCAGC 20889 1502 20829 20769 20712 GCACCGGCGGCCTGGG---CGCGGTCCTCGCCCGCCACCTGGTCGCCACCCACGGCGTCC 2076F 20652 TCCCGCTCGCCACCGAACCCACCTGGAACCCGGACGGCACCGTCCTGATCACCGGCG 1616 1442 TCACCGGCCAGCATGCCGGCGCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCAGC 1382 1202 1322 TGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGGCCACCTTCGAACACCCTACCGACC 1262 1082 AACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGC AGGAAGTGATGGGCGCGCGCGCGCGCGGCGGGCGCAAGGCCCG---GAAAATGACCCTGC 1672 CAAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCCACCCGATATCGTGGGCA 1615 CCGGACAGGCCAACTACGCCGCCGCCAACGCCTTCCTGGACGCCCTCGCCGCCCGGCGCG CCTTAC-----AATCCGGCGTGAACGGGGGGGGGGGGCGCCCCCCCCCAACCCTGGACG TGACAAGCAGCCTGTCCGACCTCGACGTCGAGCGCATCGCCCGCTCCGGCATGCCCCCGC CCGCCACCGGCCTGCCCACCTCCCTCGCCTGGGGCCCGTGGACCCAGAGCGTCGGCA GCCTGGACACCGTCCTGCGGCCCAAGGCCGACGCCGCCTGGCACCTGCACGAGGCGACCC GCGCCGCCGCATCCATTCCGTGTACGTCAACGGCGCCGGTCTGGCAAGAGCAGGCGT CCGC-----CCTCGCCGACCTGCTCGCGCGCCGCCGCCGCCACCGCTCACCG CCGCCGCGCGCTTCGGCCTGGCCGGCGGCAGCTGCAGGCCGGGTACTTCGCCGACC 1321 ATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGA 1261 GCCACCTGCTGCTCGCCAGCCGCCGGCCGGCCGGCCGACGACGCCGACGACCTGACGG 2082 CGCACGACGACCCCCCCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACT 1201 CCGAACTCACCGGGCTCGGCGCCACCGTCCACATCGCCGCCTGCGACGTCGCCGACCCGG 20888 21239 1555 1501 21059 1441 20999 1381 21179 21119 20939 1141 20711

Search completed: May 11, 2003, 03:03:11 Job time : 4976 secs

```
Command line parameters:

-MODEL-frame+_n2p.model -DEV-xlp
-Q-cgn2_flowery.ppcol/US10009782/runat_07052003_122517_23148/app_query.fasta_1.1927
-Q-cgn2_flowery.fastan -SUPFIX=pp -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-DB-PIR_73 -QFMT-fastan -SUPFIX=pp -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS-bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cd1 -LIST=45
-DOCALIGN=200 -THR_SCORE-pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT-pto -NORM-ext -HEAPSIZE=500 -MINLEN=0 -MAXIEN=200000000
-USER-US10009782_@CGN_11_46_@runat_07052003_122517_23148 -NCPU=6 -ICPU=3
-NO_MAAP -LARGEQUERY -NEG_SCORES=0 -WAIT -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
                                                                                                                                                                                                                                                                                                Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0 Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YGAPOP-10 -YGAPEXT-0.5 -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                     2511
 289.
                                    312
307
296.5
296
                                                                                                                                                                                                                                                                           Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MICOSUM62

Xgapop 10.0 , )

Ygapop 10.0 , )

Fgapop 6.0 , F

Delop 6.0 , I
                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR_73:*
76.1
30.3
228.6
112.8
110.3
110.3
110.3
10.2
9.7
9.6
8.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               283224 segs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-009-782-1
3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 11, 2003, 12:05:25; Search time 54.5 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                         pir1:*
pir2:*
pir3:*
pir4:*
                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Xgapext
Ygapext
Fgapext
Delext
                              S21323
S48478
T02345
                                                                                                                                                                                                JC4394
JC4165
B75202
                                                                                                                                                             JQ0405
B87678
                                                                                                                                              T45134
                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (without alignments)
6201.993 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       566448
                                                               probable endogluca
                                                                              BHLF1 protein -
BHLF1 protein -
                                                                                                                                  hypothetical prote hypothetical prote
                                                                                                                                                                       d-aminoacylase (as hypothetical 119.5
                                                                                                                                                                                                           aminoacylase (EC 3
N-acyl-D-glutamate
                                                                                                                                                                                                                                                                   Description
                                                                                                                     gene LF3 protein
                                            lucan 1,4-alpha-g
```

		'n								O										o					ი					c
Ü	4	· L	2	1	Ċ	· ·	6	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	36	5	4	ω	32	3	30	29	28	27	26	25	24	23	22	21	20	61	18	17	6	15
251	157	253	255.5	258.5	260.5	260.5	260.5	261	261	261.5	262	262	263	263	264	264.5	265.5	265.5	267	267.5	. 270	270.5	272.5	273.5	~	•	82.	82.	284.5	87.
7.6	7.6	7.8	7.7	7.8	7.9	7.9	7.9	7.9	7.9	8.1	7.9					•	٠	•	8.1	•							٠		60	
1487	1419	738	1151	2796	1042	964	580	839	779	640	1958	1344	1453	1188	1464	1466	3570	1791	825	.1958	1464	507	1414	1027	1733	494	1460	437	1733	1106
																												N	۳	N
œ	A41182	E87627	T18535	JC4743	CGCH1S	CGCH2S	T43481	F75518	CGB01S	T08179	B40505	A35175	S21626	S49915	S59856	CGHU7L	T45025	T02345	JC4163	B40505	CGHU1S	<b>T44768</b>	S23809	S28774	B45344	G84348	EDBEIF	C39135	534	JQ0405
alpha 1(	hail	ical p	ulai	ty-acid synt)	alpha	alpha	probable mucin DKF	hypothetical prote	eqen alpha	LRG5 protein - Chl	hypothetical prote	recur	100	extensin-like prot	lpha	먘`		thetical	DNA-binding protes	hypothetical prote	collagen alpha 1/T	antifreeze glycope	alpha			hypothetical prote	٠,	-+	lear	hypothetical 110 s

## ALIGNMENTS

JC4394

aminoacylase (EC 3.5.1.14) - Alcaligenes xylosoxydans subsp. xylosoxydans A-6 N.Alternate names: N-acyl-D-amino acid amidohydrolase C;Species: Alcaligenes xylosoxydans subsp. xylosoxydans A-6 C;Date: 20-Jan-1996 #sequence\_revision 19-Apr-1996 #text\_change 13-Sep-1998

C;Accession: JC4394
R;Watkayama, M.; Katsuno, Y.; Hayashi, S.; Miyamoto, Y.; Sakai, K.; Moriguchi, M.
Biosci. Blotechnol. Blochem. 59, 2115-2119, 1995
A;Title: Cloning and sequencing of a gene encoding D-aminoacylase from Alcaligenes
A;Reference number: JC4394; MUID:96100942; PMID:8541651

A;Accession: JC4394
A;Molecule type: DNA
A;Residues: 1-484 <MAK>
C;Comment: This enzyme, which catalyzes the hydrolysis of N-acyl derivatives ofneutr resence of zinc ion or EDTA.

C;Genetics: A;Gene: dan

G:Superfamily: aminoacylase C:Keywords: hydrolase F:68-70/Region: zinc binding

US-10-009-782-1 (1-1758) x JC4394 (1-484)

1413

460

1353

1293 420

440

```
874
                                                                                                                                                                                                                  261
                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                   754
                                                                                                                                                                                                                                                                                    221
                                                                                                                                                                                                                                                                                                  694
                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                   634
                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                  574
                                                                                                                                                                                                                                                                                                                                                                                  161
                                                                                                                                                                                                                                                                                                                                                                                                  514
                                                                                                                                                                                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                  454
                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21
       GGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAG 1233
                                       CCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCTGTGG 1173
                                                                        GGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCAGGACGTCTCG
                                                                                                                                                                                                                                           CAGCGCGCCGCCACCGACGAGGAAATCGCGGGCCATGCGGGGACCTGGCCGAGGAAGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                           ATCGGCGATCTGTCGGACGCCGCCGCGCGCACACCCGGGTCGACGTGTTCGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaProGlyPheIleAspSerH1sThrH1sAspAspAsnTyrLeuLeuArgArgArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlySerAsnThrProGlyArgArgAlaAspLeuGlyValArgGlyAspArgIleAlaAla
                                                                                         1113
                                                                                                                           1053
                                                                                                         340
                                                                                                                                                           993
                                                                                                                                          320
                                                                                                                                                                           300
                                                                                                                                                                                           933
                                                                                                                                                                                                           280
                                                                                                                                                                                                                            873
                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                            753
                                                                                                                                                                                                                                                                                                                            693
                                                                                                                                                                                                                                                                                                            220
                                                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                            633
                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                            573
                                                                                                                                                                                                                                                                                                                                                                                                                           513
                                                                                                                                                                                                                                                                                                                                                                                                                                             140
                                                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                                           453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .6
                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                    C;Accession: JC4165
R;WAKAYAMA, M.; Ashika, T.; Miyamoto, Y.; Yoshikawa, T.;
J. Blochem. 118, 204-209, 1995
A;Titte: Primary structure of N-acyl-D-glutamate amidohyd
A;Reference number: JC4165; MUID:96015170; PMID:8537313
A;Accession: JC4165
A;MOLecule type: DNA
A;Residues: 1-488 <WAK>
A;Residues: DBBJ:D45918
      Ş
                      밁
                                  õ
                                                      밁
                                                                   Ş
                                                                                      밁
                                                                                                    Ş
                                                                                                                      밁
                                                                                                                                     Ş
                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                    TAC4165

N-acyl-D-glutamate amidohydrolase (EC 3.5.1.-) - Alcaligenes xylosoxydans subsp. C;Species: Alcaligenes xylosoxydans subsp. xylosoxydans A-6
C;Date: 12-Oct-1995 #sequence_revision 10-Nov-1995 #text_change 07-May-1999
C;Accession: JC4165
C;Accession: JC4165
                                                                                                                                                                       Ş
                                                                                                                                                                                     US-10-009-782-1 (1-1758)
                                                                                                                                                                                                                                                                                                     A;Cross-references: DDBJ:D45918
A;Note: The authors translated the
C;Comment: This enzyme catalyzes th
                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                   Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                          C; Keywords:
                                                                                                                                                                                                                                                                                A;Gene: dag
C;Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                 Genetics:
      349
                                                                       232
                                                                                                       172
                                                                                                                                       112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1354
                      83
                                                      63
                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1234
                                                                                                                      23
                                                                                                                                                                         52
                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 401
                                                                                                                                                        w
CACGCCAACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAG
               CAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCCCTG---GCG
                                               ThrHisGlyHisAspAspLeuMetPheValGluLysProGlyLeuGluTrpLysThrSer
                                                                TCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCG
                                                                                                                AlaProAlaAspArgArgLeuAspAlaGlyGlyArgIleValAlaProGlyPheIleAsp
                                                                                         GCCGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGGCCCGGCTTCATCGAC
                                                                                                                                                 GluLysLeuAspLeuValIleGluGlyGlyTrpValIleAspGlyLeuGlyGlyProArg
                                                                                                                                                                  CAGCCCTTCGACCTGCTGCTCGCGGGGCGCCCCTCATCGACGGCAGCAACACCCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCACGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgThrAlaAla
                                                                                                                                                                                                                                                                        ly: aminoacylase hydrolase
                                                                                                                                                                                                      8.09e-47
1000.50
59.38%
46.46%
30.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1485
                                                                                                                                                                                      x JC4165
                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                      (1-488)
                                                                                                                                                                                                                                                                                                   codon CAG for residue 132 as Ala, GGC ne hydrolysis of N-acyl derivatives of
                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
```

tamate amidohydrolase
PMID:8537313

from

Alcaligenes

ğ ×

for resid

488 223 62 190

밁 20 밁 Š 밁 Ş 日 Ş გ ٠ ي

381

408

348 102

82 291 62

42 231

22

1174

361

1114

341

1054

994 301

Ş 뮻.

281

밁 S 문 S F Ş 밁 ٠S 밁 Ş 밁 S 밁 Š 밁 ð 밁 Ş 밁 ð 밁 Ş 밁 Š 밁

```
1246
                                                                                                                                                                                                                                                                                                                                                      1066
                                                                                                                                                                                                                                                                                                                                                                                                            1006
                                                441
                                                                                                                                                           401
                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                           341
                                                                                                                                                                                                                                                                                                                                                                                  321
                                                                                                                                                                                                                                                                                                                                                                                                                             301: ArgileThrTrpSerThrProHisProGluCysGlyGlyGlnSerLeuAlaGluIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 AlaThrValLeuSerHisHisLysCysMetMetProAlaAsnTrpGlyLysSerAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103
AspAlaProThrLeuAlaSerAlaGlyIleGluHisValLeuValAsnGlyCysAlaVal
                                                                                            GlyAlaTrpAlaAspValValValPheAspAlaAspThrValCysAspArgAlaThrTrp
                                                                                                                GGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTC
                                                                                                                                                                           AAGATGACCGGCCTGACCGCGCGCGCGCGCTTCGGCCTGGCCGGGCGGCGGGCAGCTGCAGGCC 130
                                                                                                                                                                                                                          CGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGG 1245
                                                                                                                                                                                                                                                            TACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATC 1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCG
                                                                                                                                                 ArgValLeuGlyArgTyrValArgGluAlaGluLeuLeuThrLeuGluAlaAlaValAla 400
                                                                                                                                                                                                                                                                          GGCTCCGACGGCCTGCCGCACGACGACCGCCCGCATCCGGGCCTGTGGGGGACCTTCCCG
                                                                                                                                                                                                                                                                                                                 TyrPheAlaMetAspGluAsnGluValArgArgIlePheGlnH1sGluCysCysMetVal
                                                                                                                                                                                                                                                                                                                                                                      AlaArgTrpGlyCysAspAlaValThrAlaAlaArgArgLeuCysProAlaGlyAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                 ProTyrProGlySerSerThrIleLeuIleProGluArgAlaAspGlnIleAspAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      {\tt ThrLeuAlaAsnIleAspArgAlaArgAlaAlaGlyValAspValAlaLeuAspIleTyr}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyAspAlaValGluAlaAlaValAspGluValLeuAlaValGlyArgArgThrGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCGAGCACATCGTGGGCGGGGTGGAGGAAACCTTCCGCATCGGCCGGGGCTGGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyLeuAlaArgValAlaAlaAlaArgGlyAlaLeuHisThrSerHisIleArgAsnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGGTGTGCCGGCCGCTGAGCGCGCATCGCGGCATCTACGCCACCACATGCGCGACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyPheSerThrGlyLeuAlaTyrGlnProGlyGlyValAlaGluGlnAlaGluLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLysGluGlnArgAlaMetGluArgMetLeuAlaAspAlaLeuGluAlaGlyAlaVal 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGCTGCCGCTGATCGAGGCCGCCATGGCGCGC---CAGGACGTCTCGCTGGACGCGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspMetAlaMetTyrPheGlyAlaLeuGluAlaGlnArgProMetIleAsnValAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProGlyAsnThrAlaAlaAlaLeuAlaLeuLeu-----GlyAspSerProLeuPheAla
            1485
                                                                                                                        1365
                                        460
                                                                                               440
                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                 1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              885
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1005
                                                                                                                                                                                                                                                                                                                                                                         340
                                                                                                                                                                                                                                                                                                                                                                                                                              320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                        밁
                                               Š
                                                                                                      S
                                                                            8
                                                                                                                                 밁
                                                                                                                                                            Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
```

B 8

밁 õ 밁 S 밁 Ş B õ 밁 S 밁 ő В S 밁 õ В Š 밁

```
A;Status: Ptercent A;Status: Ptercent A;Molecule type: DNA A;Rolecule type: DNA A;Rosidues: 1-526 <KARY A;Rosidues: 1-526 <KARY A;Cross-references: GB:AJZ48283; GB:AL096836; NID:g5457433; PIDN:CAB49065.1; A;Cross-ref source: strain Orsay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-009-782-1 (1-1758) x B75202 (1-526)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: ndaD; PAB0090
C;Superfamily: aminoa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Description: Pyrococcus
A; Reference number: A75001
A; Accession: B75202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               submitted to the EMBL Data Library, July 1999
A; Description: Pyrococcus abyssi genome sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: B75202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d-aminoacylase (aspartate, glutamate etc)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R; anonymous, Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Date: 20-Aug-1999 *sequence_revision 20-Aug-1999 *text_change 20-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Species: Pyrococcus abyssi
                                                 176
625 CGCGCCACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCGGCATC
                                                                                                                                                             505
                                                                                                                                                                                                   136
                                                                                                                                                                                                                                        445
                                                                                                                                                                                                                                                                  116 GluValGluPheLysTrpArgSerTyrGlyGluPheLeuAspAlaLeuGluGluValGly
                                                                                                                                                                                                                                                                                                                   400
                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ਨ
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238 ACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGC 297
                                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44 GlnValThr---IleAspAlaSerAsnLeuIleValAlaProGlyPheIleAspMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  461 Phe---ProGlnAlaProProSerHisArgProGlyArgIleLeuArgArgAspAlaSer 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24 ThrAspIleGlyIleLysAspGlyLysIleValLysIleGlyLysIleLysGluAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysSerMetGluGluGlyAlaPheGlyMetSerSerGlyLeuIleTyrProProGlyVal
                                                                        GAAGCCATGGCCAGCGGCGTTCGGCATTTCGACCGGCGCCTTCTACCCGGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                  GTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCCGCTGGCGCACGCCAAC
                                                                                                              GlyMetGluAlaArgAspProThrGluGluGluLeuGlyArgMetLysGluLeuLeuAla
                                                                                                                                                   CCGGACTTGCAGCGCGCCGCCACGGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAG
                                                                                                                                                                                         CCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTAC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaHisAspAspLeuIlePhePheLysAspArgPheAsnArgAlaLysLeuLeuGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACCTGGGCGTGCGGGGGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aminoacylase
                                                                                                                                                                                                                                                                                                 ----CGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.19e-43
942.00
55.56%
40.11%
28.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAB0090 - Pyrococcus abyssi (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             insights into archaeal chromosome
                                         195
 684
                                                                          624
                                                                                                                  175
                                                                                                                                                     564
                                                                                                                                                                                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43
                                                                                                                                                                                                                                                                                                                                                                                  399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٤.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PID:954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Orsay)
```

밁 S 밁

```
hypothetical 119.5K protein (uvrA region) - Micrococcus luteus (Alternate names: ORF 1 protein C/Species: Micrococcus luteus, Micrococcus lysodeikticus C/Date: 31-Dec-1990 #sequence_revision 31-Dec-1990 #text_chang
                                                                                                              1450
                                                                                                                                                                                                       1330
                                                                                        516
                                                                                                                                     496
                                                                                                                                                                     476 PheAspProHisArgValLysAspArgAlaThrTyrThrAsnProArgLeuProProAsp
                                                                                                                                                                                                                             456
                                                                                                                                                                                                                                                                                                 1210
                                                                                                                                                                                                                                                                                                                                             1153
                                                                                                                                                                                                                                                                                                                                                                                           1093
                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                                                                                                                                                                                                          436
                                                                                                                                                                                                                                                                                                                        416
                                                                                                                                                                                                                                                                                                                                                                    396
                                                                                                                                                                                                                                                                                                                                                                                                                 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                             356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 196
                                                                                                      CAGCATGCCGGCGCGCGTGCTCGCACGCACGGCC 1482
                                                                                                                         GlyTieLysTyrValTleValAsnGlyValLeuSerValGluAsnGlyGluLeuThrGly
                                                                                                                                              GGCATCCATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAGGCGTTCACCGGC 1449
                                                                                 AspAlaGlyGlyValValIleArgArgThrSer
                                                                                                                                                                                                                                                                                                                                                       TTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCC
                                                                                                                                                                                                                   \texttt{LysLeuGlyLeuLysAspArgGlyLeuValLysGluGlyMetTrpAlaAspLeuValIle} \\
                                                                                                                                                                                                                                                                                                         GACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                      LeuAlaLysAspGlyThrAsnAlaGlyMetIleValPheLeuMetSerGluGluAspVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerLeuLysGluIleSerAspLeuLeuHisArgAspProPheAspValLeuPheAspIle
                                                                                                                                                                                                                                                                                                                                                                                                                         GACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaGlyTrpGluAsnIleIleIleThrHisSerGluAsnPheProGluPheValGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGGA-----CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgLysLysIleArgGluPheIleGluThrArgAspAspTrpGlnAsnPheIleLysGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuProProTrpValHisGluSerGlyLysIleLysGluArgCysArgAspGluGluThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleGluIleThrLeuAspValTyrProTyrThrAlaGlySerThrTyrLeuAlaAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---GACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrSerThrHisMetArgAspGluGlyAsnArgValIleGluAlaLeuGluGluAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgiledlyArgGluSerGlyValArgValGluValSerHisHisLysValSerGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ::: ||| |||:::||||||:::
TyrSerLysThrTrpGluLeuIleGluLeuAlaMetValValAlaLysTyrGlyGlyIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----CAGGACCGCGTGCTGCTG
#text_change 04-Feb-2000
                                                                                                                           515
                                                                                                                                                                      495
                                                                                                                                                                                                                                         1329
                                                                                                                                                                                                                                                                 455
                                                                                                                                                                                                                                                                                     1269
                                                                                                                                                                                                                                                                                                                                   1209
                                                                                                                                                                                                                                                                                                            435
                                                                                                                                                                                                                                                                                                                                                                                1152
                                                                                                                                                                                                                                                                                                                                                                                                       395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1047
                                                                                                                                                                                                                                                                                                                                                         415
                                                                                                                                                                                                                                                                                                                                                                                                                                                  375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              255
       Š
                              밁
                                                  Ş
                                                                          밁
                                                                                              Ş
                                                                                                                     밁
                                                                                                                                           Š
                                                                                                                                                                   밁
                                                                                                                                                                                      Š
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                 δã
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                488
                                                                                                                                           462
                                                                                                                     197
                                                                                                                                                                  177
                                                                                                                                                                                        435
                                                                                                                                                                                                              157
                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                           141
                                                                                                                                                                                                                                                                                                                              320
                                                                                                                                                                                                                                                                                                                                                     107
                                                                                                                                                                                                                                                                                                                                                                           266
                                                                                                                                                                                                                                                                                                                                                                                                                       206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                 98
                                                                                                                                                                                                                                                                                                                                                                                                                                             78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38
```

S 밁 밁 S 밁 S 닭 S 밁 S

밁 Ş

Ş 밁

밁 Ş 밁 Ş 밁 S 용 Ş 밁 S B Ş

```
A;Cross-references: EMBL:X15867
A;Note: this reading frame extends between two stop codons and does not begin v
A;Note: the gene encoding this protein overlaps uvrA gene
C;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-009-782-1 (1-1758) x JQ0405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Accession: JQ0405
R;Shiota, S.; Nakayama, H.
MShiota, S.; Nakayama, H.
MOl. Genet. 217, 332-340, 1989
A;Title: Micrococcus luteus homolog of the Escherichia coli uvrA gene: identifica A;Reference number: S04781; MUID:89364717; PMID:2549377
A;Accession: JQ0405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-1106 <SHI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362 C------CGCCCC-----CCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 nValLeuProGlyLeuArgHisAspLeuArgArgGlyProAlaAlaLeuArgArgValAl
aArgGlyProArgProGlnGlyArgValArgGlyProValGlnGlyProValHisAlaGl
                                                                                                                                       aAlaAspArgGlyProAlaArgGlyAlaAlaArgAlaHisProLeuProGlyAlaArgAl 237
                                                                                                 ACGAGGAAATCGCGGCCATGCG------GGACCTGGCCGAGGA-----AGCCATGG
                                                                                                                                                                               TGCGCGCCGCGCTCATGCCGGACTTGCAGCGCGCCGCCAC-------CG
                                                                                                                                                                                                                     YThrCysArgGlyAlaAlaLeuProAlaValArgArgAlaGlyGluProAlaAspProAl
                                                                                                                                                                                                                                                                                                    nProAlaLeuHisSerGlyAspHisHisArgAspLeuArgLeuHisAlaProAlaLeuGl
                                                                                                                                                                                                                                                                                                                                                ----GCGGGCCACGCCGGCGGCCGTCAACGC------
                                                                                                                                                                                                                                                                                                                                                                                gGlyLeuH1sArgGlyProValProGlyArgValH1sArgProGluValH1sGlnProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                aLeuLeuLeuArgProHisValProGlyProGlyGlyGlnAlaGly------Ar
                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCGCTTCGCCGA-----CTACCTGGACGCGTT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A-----TTGCGGCAT-----CAGCCTGGCGCCGCTGGCGCACGCCAACCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aGlyArgHis----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCGCGACATGACGCCCAAGATCTCGCAGGGGCGTCACCACGGTGGT-----CACGGGCA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oGluGlyArgGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGC 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |||||||::::::|||||||
|gArgArgAlaLeuGlyArgAlaGlyProHisArgArgProGlyArgProArgAlaGlnPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGGCGATCTGTCGGACGCCGCGCGCACAC-----CCGGGTCGA---CGTGTCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAACACCCCGGGGCGGCGCCGACCTGGGCGTGCGCGGCGACCGCAT---CGCCGCCA 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTGCTGCGGGGGGCACCCTCATCGACGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Leu-HisHisArgLeuLeuArgArgGlyProArgArgArgProArgLeuArgProAr 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProValSerCysProCysProProLeuCysTrpProArgAla------GlnGluLeu 58
                                                                                                                                                                                                                                                         1.4e-15
423.50
32.84%
29.40%
12.84%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GlyArgValHisGlySerValArgLeuGlyGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-1106)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length: Matches: Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----CysGlnLeuPro----Al 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1106
239
28
252
252
47
                                                                                                                                                                                                                                                              487
                                                                                                                                                                                 529
                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                      197
                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141
                                                                                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                            434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              አ
```

612		
592	10 ACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGTGGCCGATAAAAAAAAAA	L
1309	60GACCGCCGCGCTTCGGCCTGGCCGGGCGCGCGCAGCTGCAGGCCGGGT	)y 126
1259 573	3 aAspGlyProGlyAlaAlaAspArgGlyProGlyAlaGlnGlyAspProGlyProAlaGl	
553	33 sArgGlyArgH1sProProAlaH1sAlaArgGlyH1sGlyValLeuLeuGlyAlaAlaAl	_
1204	94	)Y 119
1193 533	.52 -GCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCT	<u> </u>
1151 513	24 TCGGCTCCGACGGCCTGCCGCACGACGA	<b>L</b>
493	3 aProLeuHisHisGlyLeuArgGlyArgHisProLeuArgAspAlaGlnAlaArgGlyAs	
1090	- GAACCCGACG 109  453 9ProAlaArgGlnGlyLeuGlnGlyGlyGlyAspValProGlnProValArgProArgAl 473	_ ,
453	30	_
1079	73 TGATGGA	by 107
1072 433	742 C	
413	93 yProGlyProArgArgArgArgArgArgArgAlaValProAlaArgGlyArgArgArgAlaVa	
1021	66CTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAAT	λy 9.
965 393	11 TCAAGCAGGACCGCTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCC	) 3 3
373	55 gAspArgAlaAlaLeuValLeuLe	
365	45 OValProLeuValLeuArgGluAlaLeuLeuProGlnArgAlaArgAlaAspArgGlyAr 51 CCATGGCGCGCAGGAGAGAGGGGGGGGGGGGGGGGGGGG	9 UD 3
850	28GACGCTGCCCGCTGATCGAGGCCG	2у 8
345		
325	<ul> <li>DAIGPIOGIUALEGIYGIYArgProArgArgGIYArgValArgGIYArgGIYAlaGIYAr</li> <li>AGGTCATGGGCCAGCCCAATTTTCGGCCGCCAA</li></ul>	OV 7
79	4.	, 7
305	95 -HisProProAlaProHis	N (
29	80 FORTHER TRANSPORTED AND THE PROPERTY OF THE	א ת
	30CACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGC	Dy Oy 6
277	7 yLeuArgArgArgGlyArgGlyAspArgProAlaLeuGlyProAlaArgAlaGluG	Db 2

Oy   1367 AACACCCTACCGAGCGCGC
# E

Alignm Pred Score: Percen Best L Query DB:	RES T455 CC; SG RC; SG	dd Qy	Db	Qy	B &	d D	Qy	. Db	Qy	D	Qy	ДĎ	Qy	Db Qg	, B	Qy	Дb	Ωу	Db	Qy	ДĎ	Оу
ment S No.: : nt Sim Local Match	RESULT 6 T45134 hypothetical p C;Species: Mic C;Date: 21-Jan C;ACCCSSION: T R;Striebel, H. Gene 1/2, 41-4 A;Title: Cloni A;Reference nu A;Accession: T A;Status: prel A;Molecule typ A;Experimental	1531 T 573 S	. 568 -	1471 (	549	529 1	1369 C	509 2	1318	489 1	1258	469	1207 (	457	437	1108	417	1066	397	1018	377	988
es: rity: ilari	prote icrobas an-2000 T4513 H.M.; H.M.; 146, 11 ning inimber T4513 elimin elimin	TGCCGCCCCTC		CACGCACO	lll lll laGlyVal	euProAla	ACCCT	 AspLeuAsı	GACCTGGTGGTGTTCGACCCGGCCACGGTG	AspThrAlaGl	TGACCGC	H —	CGCGACCTG	GAGCGCCC	-	TTCGGCCCGACCATGATCGGC-	BŢH	TACTTC	ArgAspPr	NAATCCAA	AspProAs	GACCTGGAT-
5.1 338 35. ty: 28. ty: 20.	tein [imported] bacterium ammor 000 #sequence_I 134 ; Seeber, S.; 1996 and characteri er: 222923; MII 134 linary; translat 1014 SNA SNA SNA SNA SNA SNA SNA SNA SNA SNA	CTC 1542		GCCGCCTG	velThrel	iGlyGlyAı		   ValIleAs	GIGITCG	GlnAlava	GCGCGCTT	JThrArgG!	3	CATCCGC	Thrvalp	JACCATGA:	oPheLeuAs	-ATGATGG	)   DAlaAlaVa	STACGACG	oTyrGluP:	F
5.19e-11 338.50 35.59% 28.50% 10.26%	- M laph evis arsc zati D:96 ed f			AGCCCGGC	nArgAspo	gArgLeui		 spTyrAla	CCCGGCC	  InAlaValGlyLeuLeuAs	resects	LyProArg:	i	SCCTGTGG	roGlyLeu	rcggc	snTyrAla	ACGAACCC	alValLeu	recrecce	 pTyrGluProThrAlaAspLys	
Length: Matches: Conservati Mismatches Indels: Gaps:	bact 21-J :; # f th 50; GB/E			GCACGCACGGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGC	AlaGlyValValThrGlnArgAspGlyGluProThrGlyAlaLeuProGlyArgLeu	LeuProAlaGlyGlyArgArgLeuThfGlnArgAlaHisGlyTyrValAlaThrIleVa	ACCGAGCGCGCCGGCATCCATTCCGTGTACGTC	::: pLeuAsnValIleAspTyrAlaGlyLeuArgLeuG	CGGTG	  euAspArgGl	CTGACCGCCGCGCGTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGC		GGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC	AGCGCCCGCATCCGCGCCCTGTGGGGCACTATGCG    :::       	sArgAspThrValProGlyLeuSerAspGlyGlyAlaHlsValGlyMetIleCysAs	TCCGACGGCCTGCCGCAC	ProPheLeuAsnTyrAlaAspGlySerLeuAspProS	ATGATGGACGAACCCGACGTGCAG	PProAlaAlaValValLeuAspAlaMetLeuAlaArgAspG	- >>	AspLysTh	
th: hes: ervative: atches: ls:	um 200 1er 1er 7DD			TTACAATC	Threlyal	AlaHisGl	GCCGCCGG	lu	GC	  PArgGlyLeuIleAlaP	GGGCAGCT	  GlyThrMe	GAGACGGC	CCGCGGGT	GlyAlaHi	CTGCCGCA	LeuAspPr	ÿ	LeuAlaAr	25955		G2
529 181 45 198 211	ammon1aphii 0 #text_che , C. restriction 654988 BJ N:CAA55649.		ValAr	CGCCGTGA	GCATGCCG   aLeuProG	yTyrValA	CATCCATT	  ::::::  luAlaProGlnValAlaTyrAs	GCCGATACCGCCACCTTCGAA	:   eAlaProG	GCAGGCCG	tileAlaA	GGTATGGA	8 :	.svalGlym		er		gAspGlyA		:::	
	lum (fi inge 21 on-modi		 rgGlyAlaG	ACGGGGCG	GCCGCGTG      :::: lyArgLeu	laThrIle	CCGTGTAC	::: alAlaTyr	CCACCTTC		GGTACTTO	InSer	AGATGACC	-CTGGGGCACTATGCG        ::: nLeulleHisTrpThr	etIleCys		PheAlaMetLeuSer	TCCTG	:::   lyArgGlyMetLeu	GGCGCCATC	  laArgGlu	CCGAGCGC
	:agment)  -Jul-2000  fication		n 572	GCG 1530	CTC 1470	548	GTC 1410	p 528	GAA 1368	B 508	GCC 1317	488	12	GCG 1206 Thr 468	Asp 456	GAC 1149	Ser 436	GCG 1107	::: Leu 416	106	  Gly 396	GGC 1017
	system			•			Ü				7	. `	7	-		Ф		7		U		7

Oy  12 CANGROCICANTCGANTCCCARCCGTTCC-ACCTGCTCCTCCTCCTCCTCCTCCTCCTCCTCCTCCTCCTC
2 CCATGTCCCAATCCGATTCCCAGCCCTTCGA
32 CCATGTCCCAATCCCAGCCCTTCGA
y 32 CCATGTCCCAATCCCAGCCCTTCGAIII
y 32 CCATGTCCCAATCCCAGCCCTTCGA
y 32 CCATGTCCCAATCCCAGCCCTTCGAM
y 32 CCATGTCCCAATCCCAATCCCAGCCCTTCGA
y 32 CCATGTCCCAATCCGAGTTCCCAGCCCTTCGA
y 32 CCATGTCCCAATCCGAGTCCCAGCCCTTCGAA        :::
y 32 CCATGTCCCAATCCGAGTCCCAGCCCTTCGA
92 ACGGCGCAACCCGGGCCCTGCCATCCCATCCCATCCCAT
92 ACGGCGACACCCGACCCCTCGCCACCCCTCGCCACCTCGCACCTCGCACCTCGCACCTCGCACCTCGACCTCGACCTCGACCTCGACCTCGACCTCGACCTCGACCTCGACCTCACACCTCACCTCACCTCACACTCACCTCACCTCACACTCACCTCACCTCACACTCACCTCACACTCACCTCACACACTCACCTCACACACTCACCTCACACACACTCACCTCA
92 ACGGCGGGCGGACCCATCGCATCCCAGCCCTTCGAI
32 CCANGTCCCAATCCGAGTCCCAGCCCTTCGACCT
32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCT
32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACC;
32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACC;
32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACC;        :::             :::   ProAlaProSerAlaThrArgSerProSerTrpSerC
32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACC
32 CCATGTCCCAATCCGATTCCCAGCCTTCGACC

### DESS SALAMAHHISANSTOLANDERSONGCORDANTCHARTS										•			٠			
ACGGCCAGCCTGGCAGC 1045	RESU \$279 gene C;Dai C;Dai C;Acc R;Pal subm. subm. subm. subm. subm. subm. subm. sybm.	ру	Ωу	D Qy	B 8	. B 64	g Q	Db Qy	. dd . 64	D Qy	р Q	P 49	Db Qy	pb Qy	Qy	Дb
0	ext_change 31-Jan-2000 B.; Farrell, P.J. tein-Barr virus DNA spanning	1657CGGAAAATGACCCTGCAAGACCTGTCGCAGGCC	1601 CCGATATCGTGGGCAAGGAAGTGATGGGGGGGGGGGGGG	1544 CAACCCTGGACGCAAACCGCTACATGGCCCCTCCCGCTCGCAATACGGCCCCAC	1484 CCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGGGGG	1433 AGCAGGCGTTCACCGGCCAGCATGCCGGCGCGCGTGCTCGCACGCACGGCCG 148	1373 CTACCGAGCGCGCCGCCGCCATCCATTCCGTGTAACGTCAACGGCGCCGGCCG	1323 -GGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCC	1289 GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCT	1233GACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCG	1202 ATGCGCGCGACCTGGGCCTGTTCCCGCTGGA	1142 CGCACGACGAGCGCCGCATCCGCGGCTGTGGGGCACCTTCCCGGGGGTGCTGGGGCACT	1106 CGTTCGGCCCGACCATGATCGGCTCCGA	1046 TGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGG	986 GCGACCTGGATGAAGTCGCGGGCGAGCGGGCAAATCCAAGTACGACGTGGTGCCCGAGC 104	255 gAlaAlaHisArgGluAlaLeuHisLeuArgLeuGlnArg 26

	213 642 233	CCACCGACGA       AspPro  CCATCGGCAT          ProArgalap			Db 45ProGluProArgThrÀrgLeuginProAlaThrProArgArgSerGlyAlaAlaAsp 63  Qy 180GCACACCCGGGTCGACGTGTTGGGCCTGGTGGTCGCGCC 218  Db 64 ProAlaAspProValGlyHisProAlaAlaProArgAlaProGlyProGluProArgThr 83  Qy 219 CGGCTTCATCGACTCGCACACCCCACGACGACACATACCTGCTCAGGCGTCGCGACATGAC 278	45 CGJ 6 Arg 102 26 Gly 132 GCG	C;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal Alignment Scores: Pred. No.: Scores: 6.58e-11. Scores: 924 Scores: 924 Matches: 924 Percent Similarity: 34.58% Best Local Similarity: 30.26% Best Local Similarity: 10.22% Gaps: 168 US-10-009-782-1 (1-1758) x S27923 (1-924)
				<u>.</u>	÷		al homology
Q D Q G	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Оу Оу	ОУ ОУ ОУ	04 04 04 04 04	0y 0y 0y	7; Qy Qy
SHATIGUCCUTCCCTCCGCTCGCATAGGCATAGGCCCACCGATATCGTGGGCAAGGAAGTGA 1624			1302 GGCCGGGTACTTCGCCGACCTGGTGTGT-TCGACCCGGCCACGGTGGCCGATACCGCCA 1360	1182 CCCGCGGGGTGCTGGGGCAATGCGCGGGGACCTGTGTCCCGCTGGAGACGGCGGT 1241	384 GlyProGluProArgThrArgLeuGlnProAlaThrProArgArgSerGly 400 1107 GTTCGGCCCGACCATGATCGCCTCCGCCTGCCGCACGACGACGCATCCGCG 1161 401 AlaAlaAspProAlaAspProValGlyHisProAlaAlaProArgAlaProGlyProGlu 420 1167 CCTGTGGGGCACCTT	945 CATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGC 1004	287 ThrArgLeuGlnProAlaThrProArgArgSerGlyAlaAlaAspProAlaAspProVal 306 849 CGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGG 899

. B

	44/ GGCGGCCTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCGC	, н с		86.03		183 CACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCGGCTTCATCGACTCGCACACCCA 242        169 Hispro 170	123 CCTGGGCGTGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCGCCGCGCCGCA 182		CCAATC	-782-1 (1-1758) x QQBE3 (1-66		NO: 4.4e-10 Length: 321.50 Matches: 31.83% Conservative:	erremity: numan herpesvirus 4 BHLF1 protein	mber: A03794; MUID:84270667; PMID:6087149  notation; protein coding region  sequence contains four perfect repeats (residues 149-273, 274-308, 200-	Biggin, M.D.; Deininger, P.L.; Farrell, P. xpression of the B95-8 Ebstein-Barr virus	: A03742 Ype: DNA	tol. Biol. Med. 1, 21-45, 1983.  First He: Sequence analysis of the 17,166 bp EcoRI fragment C of B95-8 Epstein-Barr virus  FREFERENCE number: A93065; MUID:85035713; PMTD:6002825	9 4, Epstein-Barr virus Ce_revision 25-Feb-1985 #text_c	ein - human herpesvirus 4 (s	O.		, '
δλ	ДЪ	Db Qy	g dd y	04 04	D QQ	Qу Оъ	40 40	dg dg	dd Vo	В	νο	, V	dg dg	da da	40 40	Qy	Q	ַ טַ	D	۵	ם ט	
1476 CACGGCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGGGGG	1416 CGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCG	2 CTTCG    6 ArgAr	GGCCG      GlnAr	1263 476	1221 GTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGAC 1262	1182 CCCGCGGGTGCTGGGCCACTATGCGCGCGACCTGGGCCT	7 1143 GCACGACGAGCGCCC	1083 397		362 ArgLeuProGlnAspLeuAlaAlaAlaGlnArgCysProAlaGlyProPro	342 GLys. 963 GCCC	918 GGA-	838 GCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA	318	301 GlnA 798 GGGC	738 AACCTTCCGCAT	687 CGC 286	UY 627 CGCCACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTA 686	259	567	QY 507 GGACTTGCAGCGCGCCACCGACGAAGGAAATCGCGGCCATGCGGGAACCTGGCCGAGGA 566 Db 250116119705051111111	

			•				
Oy 1585 156  Oy 1585		lnAlaAspHi	Alignment Scores:  Pred. No.:  1.44e-09 Score:  312.00 Percent Similarity:  31.59% Best Local Similarity:  27.10% Query Match:  DB:  1.44e-09 Pength:  660 Patches:  181 Conservative:  30 Mismatches:  225 Pength:  160 Pength:  160 Page:  160 P	A/Residues: 1-660 R/Baer, R.; Bankler, A.T.; B1991n, M.D.; Deininger, P.L.; Farrell, P.J.; Gibson, T.J.; Rature 310, 207-211, 1984 A/Title: DNA sequence and expression of the B95-8 Epstein-Barr virus genome. A/Contents: annotation; protein coding region C/Comment: The sequence contains four perfect repeats (residues 149-273, 274-398, 399-57) C/Superfamily: human herpesvirus 4 BHLF1 protein	human herpe reb-1985 #s : A03742 A.T.; Deini Med. 1, 21- quence anal number: A9 : A03742	Qy 1695CATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA 1751	Db 546ProproglyAlaGlyGlnArgProSerGlyProThrGlyGlyArgProAlaA 563  Oy 1536 CCCCCTCCCAACCCTGGACGCAAACCGCTACATGGCCC
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 P P P P P P P P P P P P P P P P P P P	70 40 40 40			•		
	453 868 473 835	420 Proproprog1) 970 GGAAGGGCTTGG     440 GlyAlaprog1) 913	383 1087 400	Db 343 SerGlyProAlaAspProProAlaAlaAlaAlaArgLeuProProGluArgGlnGluProArg 362  Qy 1192	13 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		Qy 1534GGCACGCCGCCCGTTCACGCCGGATTGTAAGGGCTGGGGGCGGGGCTCAGGCCGG 1481

TOTCGGGCCTGGTGGTCGCCGCCGCCTCATCGACCACCACCACCACCACCACCACCACCACCACCACCAC
--

SGA genes

from

tn

ç

STAI

critical

for

gg

436

418 238 398

382 127 .67

```
S48478

S48478

glucan 1,4-alpha-glucosidase (EC 3.2.1.3) - yeast (Saccharomyces cerevisiae)

N;Alternate names: extracellular glucoamylase; mucin-like protein MUC1; prot

C;Species: Saccharomyces cerevisiae

C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 12-Nov-1999

C;Accession: S48478; A26877; B26877; S27281; JC6123

R;Rowley, K.
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                      멹
                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                     1733 AGATCGCCCTGAGCTACGA 1751
                                                                                                                                                                                                                                                                                                   1673
                                                                                                                                                                                                                                                                                                                                                                     1625
                                                                                                                                                                                                                                                                                                                                                                                                                                           1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1454
                                                                                                                                                                                          .576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1163
                                                                                                                                                                                                                                                                                                                                                                                                        518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1043 A-----GCTGCAGCCGGCCGCCGCCATCTA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         983
                                                                                                                                                                                                                                                                                AAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC 1732
                                                                                                                                                                                      rGluArgAlaGluLeuArg
                                                                                                                                                                                                                                             gAlaAspValval-----ArgAlaArgArgLeuArgThrArgArgGlyAlaAlaGlyTh 576
                                                                                                                                                                                                                                                                                                                  pArgThrAlaValArgLeuProArgValArgArgAspSerArgAlaGlnArgAspThrAr
                                                                                                                                                                                                                                                                                                                                                     TGGGCGCGCG-------CCTGCGCGCGAGCGCAAGGCCCCGGAAAATGACCCTGC
                                                                                                                                                                                                                                                                                                                                                                                      eHisTrpGlyGlyValArgLeuProArgGlyAlaArgAlaSerGlnGlyHisArgArgAs
                                                                                                                                                                                                                                                                                                                                                                                                                         ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            nLeuArgArgGluAlaThrGlyGlnArgProAspAlaMetGlyAlaArgAlaHisProIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATCCGGCGTGAACGGGGGGGGGGTGCCGCCCCCCCCAACCCCTGGACGC---AAACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gAspArgProGlnLeuArgValLeuValH1s----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCCGGCCGCGTGCTCGC-----ACGCACGGCCGGCCTGAGCCCGGCGCCAGCCCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pArgAlaArgAspLeuArgArgHisValAspAlaThrAlaGlyGlnGlyArg---Ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGAGCGCGCCGCCATCCATTCCGTGTACGT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gAlaAspCysHisAlaArgProGly------ValSerHisArgAlaThrPro--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yArgLeuArgValSerAlaLeuArgValValProLeuArgArgArgSerGlyArgAspAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGGCGCGGCAGCTGCAGGCCGGGTA-----CTTCGCCGACCTGGTGGT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCGCTGGAGACGCCGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCGCGACCTGGGCCTGT 1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gProProGluGlyArgAspLeuGlnArgArgAlaValProGlySerArgAlaProGlnAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aGlyAlaSerGlyGlnArgArgValGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oSerGlyLeuGlnArgArgGlnAlaSerAlaValGluGlnArgHisProGlyArgArgAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -ProArgGlyGlyGly--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gLeuHisArgAlaGluGlyArgArgGluAlaSerLeuGlyLeuArgAlaArgGlyValPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCCAAGTACGACGTGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -CCCGACCATGATCGGCTCCGACGGCCTGCC-----GCACGACGAGGGCGCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---ArgGlyHisProHisArgCysArgAlaValArgGlySerArgGlnAspAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTA 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----GluArgGlyArgAlaGlnArgIle-----ArgArgGlyGlyAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -CAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGC
                                                                                                                                                                                      582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----valgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CTTCA 1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----G1
                                                                                                                                                                                                                                                                                                                                                       1672
                                                                                                                                                                                                                                                                                                                                                                                                                           1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1282
                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1042
                                                                                    YIR019c
                밁
                                            Ş
                                                                                 밁
                                                                                                                  Ş
                                                                                                                                                       밁
                                                                                                                                                                                    Ş
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                        US-10-009-782-1 (1-1758) x S48478 (1-1367)
                                                                                                                                                                                                                                                                                                                                                                                                       DB:
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;1350-1366/Domain: transmembrane #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Lambrechts, M.G.; Bauer, F.F.; Marmur, J.; Pretorius, I.S. Proc. Natl. Acad. Sci. U.S.A. 93, 8419-8424, 1996
A;Title: Mucl. a mucin-like protein that is regulated by Mss1 A;Reference number: JC6123; MUID:96323337; PMID:8710886
A;Accession: JC6123
A;Starius. JC6123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: SGD:MUC1; STA2; MAL5; DEX;
A;Cross-references: MIPS:YIR019c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEBS Lett. 239, 179-184, 1988
A;Title: Similar short elements in the 5' regions of the A;Reference number: $27281; MUID:89031230; PMID:3141213
A;Accession: $27281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Yamashita, I.; Nakamura, M.; Fukui, S.
J. Bacteriol. 169, 2142-2149, 1987
A;Title: Gene fusion is a possible mechanism underlying A;Reference number: A91831; MUID:87194600; PMID:3106330 A;Accession: A26877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:M16165; NID:g172523; PIDN:AAA35015.1; R;Pardo, J.M.; Ianez, E.; Zalacain, M.; Claros, M.G.; Jimenez, FEBS Lett. 239, 179-184, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \;Molecule type: DNA
\;Residues: 1-1367 <LAM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
A; Residues: 762-1331 <YA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-242 < YAM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: A; Accession: S48478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-31 < PAR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: B26877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Superfamily: yeast glucan 1,4-alpha-glucosidase homolog;
Keywords: glycosidase, hydrolase; polysaccharide degrada
5-21/Domain: transmembrane #status predicted crmi>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Map position: 9R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cross-references: GB:U30626; NID:gl304386; PIDN:AAC49609.1; PID:gl304387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cross-references: EMBL:M16164; NID:g172522; PIDN:AAA35014.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Residues: 1-1367 <ROW>
              419
                                               239
                                                                                  399
                                                                                                                    188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                   383
                                                                                                                                                                                        128
                                                                                                                                                                                                                         365
                                                                                                                                                                                                                                                                                             345
                                                                                                                                                                                                                                          œ
   SerAlaProValThrSerSerThrThrGluSerSerSerAla----
                                                                                                     GGGTCGACGTGTCGGGCCTGGTCGCCCCGGCTTCATCGACTCGCACA------
                                                                                                                                      ValThrSerSerThrThrGluSerSerSerAla-----ProValProThrPro
                                                                    SerSerSerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSerSer
                                                                                                                                                                                                          GluSerSerAlaProValThrSerSerThrThrGluSerSerSerAlaPro-----
                                                                                                                                                                                                                                                                               Thr SerSerThr Thr Glu SerSerSerAla ProVal ProThr ProSerSerSerThr Thr
                                                                                                                                                                                                                                                                                                                ACTTGATCGCGGAAGGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGC
                                                                                                                                                                       GCGTGCGCGGCGACCGCCATCGCCCATCGGCGATCTGTCGGACGCCGCCGCGCGCACACCC 187
                                 ----CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S48478
                                                                                                                                                                                                                                                                                                                                                                                                              1.06e-08
296.50
38.72%
25.50%
8.99%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEX2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL: 238061;
Fuku1, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SGD:S0001458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGD:S0001458
                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NID:g603997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homolog; glucan 1,4-alpha-glucos
degradation; transmembrane prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ^TM2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
 ProvalThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mss10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID: 9763364; GSPDB: GN0001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PID:94552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PID: 9172526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID: g172525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15
```

	1390	1331 TCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCG	•
	59	40 ProSerSerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSer	_
	1330	1 GCTTCGGCCTGGCCGGGCGGGGGGGGGGGGGGGGGGGG	-
	1270 739	GCCGCGC	-
	1210 720	ANGUCUCUARICUGCIGCTIGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGC	
	1150 700	to; charcoregocorrocaccacGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGACGACGACGACGACGACGACGAC	
	1096	661 Th	;
	1036	] 0 6 9	• • •
	976 640	י פי	
	620	9 6	₹.6
	0.6	8 5 5	4 9 r
	820 584	565 SerserThrProValThrSerSerThrThrG	₹ ₩
	760 564	7.6 7.6	₹ ₹
	700 544	. 51 6	′ ⊬ ∻
	533	581 GCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCGCCGCCACCGACGACGACGACG	, , ,
	580	27 321 CCGCCACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCG	_ ⊭ .5
	510	491 SerThrThrGluSerSerSerAlapr	? 2
	4 4 1	:TGGACGCGTTGCGGGCCACGCCGGCCGCCCC ::: GluSerSerSerAlaproValproThrPro	
·	412	457 ProValProThrPro	, , ,
	352	ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCGC	ם ש כ
			,

Ş

```
밁
                                       Š
                                                                            밁
                                                                                                           Ş
                                                                                                                                              밁
                                                                                                                                                                             8
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                 δÃ.
                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                            US-10-009-782-1 (1-1758) x T02345 (1-1791)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Map position: 16
A; Introns: 1610/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Ricke, D.O.; Eruce, D.; Mundt, M.; Doggett, N.; Munk, C.; Saunders, E.; Robinson, re, J.; White, S.; Deng, S.; Tatum, O.; Campbell, C.; Fawcett, J.; Deaven, L. submitted to the EMBL Data Library, March 1998
A;Description: Sequencing of human chromosome 16p13.3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
T02345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Note: KIAA0324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-1791 <RIC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Status: preliminary; translated from GB/EMBL/DDBJA:Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: 214664
A; Accession: T02345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Cross -references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypothetical protein KIAA0324 - human (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮻
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Species: Homo sapiens (man)
Date: 05-Mar-1999 #sequence_revision 05-Mar-1999 #text_change 05-Nov-1999
Accession: T02345
                                                                                1528 ------CCGCCCCGTTCACGCCGGATTGTAAGGGCTGGCGCCGGGCTCAGGCGG 1481
                                                                                                                                                                               1579
                              1480 CCGTGCGTGCGAGCACGCGGCCGGCATGCTGGCCGGTGAACGCCTGCTCTTGCCAGACCG 1421
                                                                                                                                                                                                                                                   1639
                                                                                                                                                                                                                                                                                                   1699 CGATGCCGCTGCCGACAGGTCTTGCAGGGTCATTTTCCGGGCCCTTGCGCTCGGCGC 1640
                                                                                                                                                                                                                                                                                                                                                                       1747 AGCTCAGGGCGATCTGGCCCAGCTCGGCCTTGGACAGGGTCGAGACCG------ 1700
          699
                                                                                                                                                                                                                                                                                   639
                                                                                                                                              670
                                                                                                                                                                                                                                                                                                                                                     619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1511 CCGGCGTGAACGGGGGGGGGGGGCGCCCCCCCAACCCTGGACGCAAACCGGCTACATGG 1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1451 AGCATGCCGGCGCGCGTGCTCGCACGCACGCCCGGCCCTGAGCCCCGGCGCCAGCCCTTACAAT 1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1571 CCCCTCCCT 1579
|||:::|||
838 ProValPro 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                     SerProGluH1sProProLysSerArg----
                                                                                                                                  SerGlySerSerEysGlyArgGlyProSerProGluGlySerSerSerThrGluSer 689
                                                                                                                                                                  AGGGAGGGCCATGTAGCGGTTTGCGTCCAGGGTTGGGAGGGGGGCGCCACG------
                                                                                                                                                                                                    -----GluProLysAlaProAlaPro----ArgAlaLeuProArgArgSerArg
                                                                                                                                                                                                                                 GCAGGCGCGCCCATCACTTCCTTGCCCACGATATCGGGTGGGGCCGTATTGCGAGCGG
                                                                                                                                                                                                                                                                    LysProArgAlaAlaProArgAlaGlnSerGlySerAspSerSerPro------ 654
                                                                                                                                                                                                                                                                                                                                       SerLysSerArgLeuSerProArgArgSerArgSerGlySerSerProGluValLysAsp 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValProThrProSerSerThrThrGluSerSerAlaProValProThrProSer 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerSerThrThrGluSerSerValAlaProValProThrProSerSerSerSer---Asn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCC 1450
-----ThrAlaArgArgGlySerArgSerSerPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1706/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL: AC004493; NID: g2996648; PIDN: AAC08453.1; PID: g2996650
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.15e-08
296.00
35.61%
27.84%
9.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                              1791
179
50
221
194
27
                                                                                                                                                                    1529
                                                                                                                                                                                                                                      1580
                                                                                                                                                                                                      669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              778
```

85 2		뮹
3		QY
65 2	46 ArgAlaSerProValSerArgArgArgSerArgSerArgThrProProValThrArgArg	당
1 4	•	Ϋ́
л	9 6	망
518	n '	Qy
940	921 ArgSerArgThrSerProValSerArgArgSerArgSerArgThrSerValThrArg 9	D <sub>0</sub>
578	CGGGCGGCGGGCGGGTAGAAGGCGCCGGTCGAAATGCCGATGGCGCGCCGC	Qγ
920	erProAlaThrHisArgArgSerArgSerArgThrProLeuIleSerArgArgArgSer	р
629	GCGCGCTCAGCGGCCGCCACACCTCGATGATCTCTTCGGTGGTGG	δ
900	SerArgAla	8
677	STAGATGCCGC	δĀ
168	  erProAla	뮍
728	CGAGATCACCACCGGCACGTCCAGCTCGCGGCCGATGCGGAAGGTTTCCTCCAGCG	φ
872		B
788	ACCTIGT	δ
U		D <sub>0</sub>
839	GTAGGGATACGCGTCCAGCGAGACGTCCTGGCGCGCCATGGCGGCCTCGATCA	δδ
836	н —	망
899	GAGC	ρ
ω	::: rgArgArgGlnArg	₽ ₽
959	TIGC	ν̈́
816	н	윰.
1019	CCGGCTGCAGCTCGGGCACCACGTCGTACTTGGATT	φ
803	RrgArgGlyArgSerProSerProLysProArgGlyLeuGln	ర్జ
1079	CGCCAGGATGCGCTGCACGTCGGGT	<b>Q</b> .
783		рb
1133	GGATGCGGGCGCTCGTCGTGCGGCAGGCCGT	VΩ
765	746 ProGluThrArgSerArgThrProProArgHisArgArgSerProSerValSerSerPro	당
1193	TCGCGCGCATAGTGCC	φ
745	726 SerProGluLeuThrArgLysAlaArgLeuSerArgArgSerArgSerAlaSerSerSer	ర్జ
1241	1300 GCAGCTGCCCGCGCCCGGCCAGGCCGAAGCCGCGGCGGTCAGGCCGGTCATCTTCCATA	νQ
725	709GluProLysThrLysSerArgThrProProArgArgArgSerSerArgSer	Дb
1301	1360 TGGCGGTATCGGCCACCGTGGCCGGGTCGAACACCCACGAGGTCGGCGAAGTACCCCGGCCT	Qy
708	708	밁
1361	1420 GCGCGCCGTTGACGTACACGGAATGGATGCCGGCGCGCGC	Q.

Ş	D Qy	US-10	Alignment Pred. No.: Score: Percent Si Best Local Query Matc DB:	Qy 421 AGTCGGCGAAGG Db 986 Thrargarg
1.0	58 I	-009-7	nment Sc No.: e: Cocal S: y Match:	Qy 421 AGTC Db 986 ThiA Qy 370 GGGG Db 1005 rgTh Qy 323 Db 1025 rgSe Qy 277 TCAT Db 1035 Db 1052 SerA Qy 217 GGGC Cy 217 GGGC Db 1052 SerA Qy 175 CGGC Db 1072 LysA Qy 175 AGGT Db 1092 ArgT Db 1092 ArgT Db 1109 ArgA Qy 125 AGGT Db 1129 Arg Qy 126 AGGT Cy 127 AGGT Cy 128 AGGT Cy 129 Arg Db 1129 Arg Cy 129 Arg
	TTCGACC :::   : TyrAspv	82-1 (	st Scores: Similarity: Sal Similarity: ttch:	Qy 431 AGTCGGCAAAGGGCTGGAAACGGTTAGAGGCGCCTTGGTCC
3	ACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGCGGCGC   :::::::                ::: spValIleIleArgAspGlyLeuTrpPheAspGlyThrGlyAsnAlaProLeuThr	(1-1758	ırity:	AGTCGGCGAAAGGGTTCGAAACGGTTAGAGGCCGCTTCGTCCC
	TCGCG	×	1.34e 294.0 36.48 24.06 8.91%	AGCGCTCGAAACGG      :::ArgSerArgSer GCGGTTGGCGTTGCGTTGCGTTGCGTTGCGTTATGATGATGATGATGATGATGATGATGATGATGATGA
	GCGGC .     	D70928	34e-08 48# 06#	PRIGAMACGGTP       : ::   SerArgSerAr         : ::   SerArgSerAr                 PhrArgArgAr                   PhrSerProva   TGAGCAGGTA                       PhrSerProva   CCGACACGTC                     PhrSerProva                       PhrSerProva   Phr
	ACCCTC	(1-611)		
	CGGCACCCTCATCGACG	٢	Length: Matches: Conservativ Mismatches: Indels: Gaps:	GCCCCGGGGTGGGAACGGTAGGACCGCCTTCGT
	GGCAGCA		· 6	CGAAGGGCTGGAAACGGTAAGAGCCGCCTTCGTCCAGCAGGTCCGILIIII::: CGGGCGGGTTGGCGTGCGCCAAGGGCGCAGCGGATGCGG
	CAACAC ; ; ;Glyas;		611 153 79 216 190	:::   IThrargargarg   CTGGATGCCG
	ACACCCCGGGGCGCGC lyAsnAlaProLeuThr			:::
	GCGGCG			-AGCAGGTCCA
	ic 117			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
				005 005 005 005 005 005 005 005 005 005
				ella se s

ğ

118 GCCGACCTGGGGGTGCGGGGGGACCGGCATCGGCC-----GCCATCGGCGATCTGTCGGAC 171

ď	:::	
9	ATCATCACCTGC	¥
y 379		σ,
ب د	24 CGTGCTGCTGGCAGGCACCC	¥.
		ֿד יעֿ
7a 339	19 lArgPheGlnHisLeuProValProPheGluLeuTyrSerAs	ō
- 885	TCGCTGGACGCGTAT	¥
⁄a 319	::: PheGlyLeuGlyThrArgValLeuAsnLysLeuLeuGlySerGln	ŏ
GC 848		¥
II 839 Le 299	79 nArgArgLysGlyValArgMetSerMetLeuValSerAlaAspAlaLysSerMetPrc	8 3
N	16 CCCCCCCCCC	₹ 1
G 81	CTCGCACCACAAGGTCATGGGCCAGCCCAATTTCG	ਝ ਝ
2	aPr	ĕ
CG 755	CGCGACGAAGGCGAGCACATCGTGGCCGCGCGCGGGAGGAAACCTTCCGCATCGGCC	¥
u 24	:::   ::: erArgAlaLeuProSerThrPheAlaThrTrpArgGluArgArgLysLe	ğ
7 60 4	COCACOSTORATOLES OF THE SECOND SECONDALISATION OF THE SECOND SECO	₹.
		Ŗ.
21	Spietra Witnessen Teneration and Company of Francisco Company of C	₹
	GAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA         : : :	₽ ₹
la 191		(
G 53	GCGCGCCCACCGACG	9 %
rg 172	53 IleAspAlaLeuProLeuGlyProAsnValSerSerI	. 8
ი 4	3 TTGCGGGCCACGCCGGCCGGCCTGT	Ş
  a 15	::: lnThrTrpSerThrProAlaGluTyrIleGluA	B
ଜ 43	CTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACG	Ϋ́
he 13	luAlaValProArgGluF	В
390	CCAACCCGCCGGCCCCCTGGACCTGCTGGACGAAGGC	Ş
11	:	В
۰۰ س	STCACCACGGTGGTCACGGCAATTGCGGCATCAG	δ
TG 74T	76 Va	
) T		Ş
AC 231	ThrGlyCysProGluValValAspAlaAlaGlyLysTrpValValProGlyChphaile	B 2
1u 55	o Argini LeuclylleArgAspGlyValValAlaThrValAlaAlaGlyAlaLeuAspG	5 5
'::		밁

ASPLYSSERIBUILEDLY SEETPHEGLYAL BILANARS POLLARS POLLA	RESULT 14 A43932 mucin 2 prec N;Alternate C;Species: H C;Date: 10-M C;Accession: R;Gum Jr., J J. Biol. Che A;Accession: A;Molecule t A;Reference A;Gum Jr., J J. Biol. Che A;Title: The A;Reference A;	Db Qy 1 Db Db Db Db Db		Db Oy
, m	ursor, intestinal - human (fragments) names: mucin SMUC-41 omo saptens (man) ar-1993 #sequence_revision 12-Apr-1996 #text_change 05-Nov-1999 Ax9963; Ax5106; Bx5106; Ax3932; B33522; Ax61257; PQ0328; PQ0329 Ax9963; Ax45106; Bx5106; Ax3932; B33522; Ax61257; PQ0328; PQ0329 Ax9963; Ay40-2446, 1994 ecular cloning of human intestinal mucin (MUC2) cDNA. Identification o number: Ax49963; MUID:94132002; PMID:8300571 Ax49963 Ax49963; MUID:94132002; PMID:8300571 Ax49963 Ax49963; MUID:94132002; PMID:8300571 Ax49963 Ax49963; MUID:94132002; PMID:8300571 Ax49963 Ax499	44 luGluAlavalProTyrTyrGlyClyLeuArgArgMetValAsnArgAsnAspÄlaThrv  94 TCCATTCCGTGTACGTCAACGGCGCCGCGTCTGGCAAGAGCAGGCGTTCACCGGCCAG- ::::::::::::::::::::::::::::::::::::	ACGAACCCGACGTGCAGCGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCAGACCGACGACCATGATCAGCCTGGCGCTTCGGCCCGACCATGATCAGCCCGACGACCATGATCAGCCCTCGACGACCATGATCAGCCCCGACCGA	GTACGACGTGCCCGAGCCGGCCGAGCGCGCAATCCAA 102

```
Ş
                                                                                                                                                밁
                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                             US-10-009-782-1 (1-1758) x A43932 (1-3020)
                                                                                                                                                                                                                                                                                                                                                                                                          Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No .:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Map position: 11p15.5-11p15.5
Superfamily: von Willebrand factor; von Willebrand factor type A repeat homology;
Keywords: 91ycoprotein; intestine; tandem repeat;
;2766-2834/Domain: von Willebrand factor type C repeat homology <VWC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gene: GDB:NUC2
Gene: GDB:NUC2
;Cross-references: GDB:120203; OMIM:158370
;Man position: 11p15.5-11p15.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Molecule type: protein
Residues: 2328-2342,'K',2344-2354 <XUG1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Molecule type: mRNA
Residues: 2328-2468 <XUG>
Cross-references: GB:M86523
Experimental source: small intestine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Experimental source: bronchus; XX, in CCOOl, D.; Wang, D.; Jones, C.; Forstner; XX, G.; Huan, L.; Khatri, I.; Sajjan, U.S.; McCOOl, D.; Wang, D.; Jones, C.; Forstner; Title: Human intestinal mucin-like protein (MLP) is homologous with rat MLP in the C.; Reference number: PQ0328; MUID:92198477; PMID:1550588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jany, B.H.; Gallup, M.W.; Yan, P.S.; Gum, J.R.; Kim, Y.S.; Basba, Clin. Invest. 87, 77-82, 1991
Fittle: Human bronchus and intestine express the same mucin gene. Reference number: A61257; MUID:91086481; PMID:1985113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Accession: PQ0329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *Molecule type: DNA Residues: 1343-1350, 'L',1352-1411,'S',1413-1448,'P',1450-1503,'T',1505-1915 <TOR>
*Residues: 1343-1350,'L',1352-1411,'S',1413-1448,'P',1450-1503,'T',1505-1915 <TOR>
*Cross-references: GB.M74027; NID:g188863; PIDN:AAA59875.1; PID:g188864

*Note: sequence inconsistent with the nucleotide translation form, 'JR: sequence extracted from NCBI backbone (NCBIN:55749, NCBIP:55750)

*Solution of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Status: not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Cross-references: GB:M22405; NID:g188873; PIDN:AAA36334.1; PID:g188874;Experimental source: intestine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:M94131; NID:g186395; PIDN:AAA59163.1; PID:g186396
A;Note: sequence extracted from NCBI backbone (NCBIP:116706)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Molecule type: mRNA
Molecule type: mRNA
Residues: 'T',1925-1948,'TTS',1952-1954 <JAN>
                                                                                1383 LysIleArgValAsnCysCysTrpProMetAspLysCysIleThrThrProSerProPro 1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Molecule type: mRNA
Residues: 1916-2193 <GU4>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Note: sequence extracted from NCBI backbone (NCBIP:116698)
Torlbara, N.W.; Gum Jr., J.R.; Culhane, P.J.; Lagace, R.E.; Hicks, J.W.; Petersen, Clin. Invest. 88, 1005-1013, 1991
Title: MUC-2 human small intestinal mucin gene structure. Repeated arrays and polym Reference number: A43932; MUID:91358717; PMID:1885763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Status: not compared with conceptual translation
        20 AAGGAGAGATTTCCATGTCCCAATCCGATT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OSS-references: GB:M94132; NID:g186397; PIDN:AAA59164.1; PID:g186398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2037-3020 <GU3>
                                                                                                                                                                                                                                                                                                                                                                                          2.72e-08
289.50
32.92%
25.70%
8.78%
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                -CCCAGCCCTTCG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Basbaum, C.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۷oI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eνí
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   닭
```

1419 Thirmith Proserte Proprophy Thirmith Thirluspro   Proprophy	122 ACCTGGGCGGCGACCGGCGCGACCGGCGCACGGGCGACGAGGGCGACGA			H H	de	nor G.
Property of the property of th	Pro 1111 1162 1162 1162 1162 1162 1162 116	y 959 5 1576 7 1019 7 1085 7 1064 7 1605 1 1118 ( 1118 (	782 1544 842 1549 899	Qy 542  Db 1501  Qy 602  Db 1512  Qy 662  Qy 662  Db 1524  Qy 722  Db 1533 I	1456 7 362 9 1464 7 422 7 422 1474 1490	Oy 122  Db 1419  Oy 182  Oy 182  Oy 182  Oy 1849  Oy 302
				CCAGCGGCGCCATCGGCATTTCGACCG	[leser	"InfproSerproProProThrThrThrThrThrLeuPro

   711 ArgProG	D D	č
844 CGATCAG	Qy	
691 ValArgH	Db	
856	Оу	QY 1744 TCAGGGCGATCTGGCCCAGCTCGGCCTTGGACAGGGTCGAGACCGCGATGCCGCTGGCCT 1685
671 ArgvalA	DЪ	US-10-009-782-1 (1-1758) x JQ0405 (1-1106)
898 CGGCCAC	οy	2 Gaps:
665	рь	
958 ACCAGGT	V	milarity. 287.50 Matches:
646 ProHisA	Дb	
994 CCAGGTC	Qy	family: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal homolo
· 626 ProAlag	<b>р</b> ь .	Note: this reading fra
1054 CCGGCTG	Qy	A; Residues: 1-1106 (SHI) A; Cross-references: FMRL. Y15967
612 ArgArgF	Db	SU4/61; MUID:89364/1/; PMID:2549377
1111 CGAACGC	Qy	A;Title: Micrococcus luteus homology of the Escherichia coli uvrA gene: identification of
593. Leu <i>I</i>	Db.	5
1171 ACAGGC	Qy	C;Accession: JOAAO5
573 Glyvalı	망	N;Afternate names: ORF 1 protein
1225 GGAACA	· ογ	110 84
562 GlyPro	Db	2117
1285 CGGCCA	Qy	1764 Serill@hrpnomenheat-g-
542 AlaArg	Db	1586 COMMISSION OF THE TAXABLE PROPERTY.
1321	· ογ	1745
523Gly	рь	1526 06000#000000
1375 TAGGGT	Qγ	1728 MetThTTh-Bross-Till
513 Glyval	ъDb	1466 TGCTCGCACGCACGCCTGACCCCCCCCCCCCCCCCCCCC
1435 GCTCTT	Qy	: ₿
493 AspArg	рь	1406
1456	Οу	
473 AlaPro	ф	1360
1513 CGGATT	Qy.	1671
453 ArgPro	В	Ov 1355
1558	γQ	1652 -
440 H1sprc	Дb	
1606 TATCGG	Qγ	Dh 1641
426 Arg	뭥	1034
1666 TCATT	ογ	

QV Db	Qy	ДЪ	Db	Qy D	Qy	р Б 2		Qy		γ		Q 5	, 24 40	Дb	ν	ДЪ	Qy	·Db	Qy	рь	Qy	дь	Qy .	οb	γo	Db	Qy	<b>В</b>	γ
601 17513	856 -	898 c	65	646 I	994 (	. 626	612	1111	593.	1171	573	1225	) (	542	1321	523	1375	513	1435	493	1456	473	1513	453	1558	440	1606	426	1666
		CGGCCACGTAGGGATACGCGTCCAGCGAGACGTCCTGGCGCG	:::	ProHisArgArgArgAlaArgArgGlyHisAspArgArgClyGlyLeuAspArgGly ACCAGGTGATGATGGTGCGTCCGCCAGCCACCACCACCACCACCACCACCACCACCACCA	CCAGGTCGCGCCCGCTCAGTTCGGGGAAGGGCTTGC	ProAlaGlyGlnProProProHisArgAspProProAlaProAlaGlyProArgGlnHis	ArgArgProLeuArgProArgArgAlaValHisArgProAla	GEAACGCCAGGATGCGCTGCACGTCGGGTTCGTCCATCATGAAGTAGATGGCGCCGG	LeuArgargGlyProAlaHisProProGlyHisThrAspArgLeuArgAlaGly	ACAGGCGCGGATGCGGGCGCTCGTCGTGCGGCAGGCCGTCGGAGCCGATCATGTTGTTCATC	GlyValProAlaGlyArgArgProArgValProGlnProArgAlaAlaGlyArgHiaPro	GGAACAGGCCCAAGGTCGCCCCATTACTCCCCCCATTACTCCCCCCCATTACTCCCCCC	GCGGTCA		ရှိ	:    OAlaH1	CCGTGGCCGGGTCGAACACCACCA	GlyValProArgGlyProProGlnProHis	GCTCTTGCCAGACCGGCGCGCGTTGACGTACACGGAATGGATGCCGGCGCGCGC	roArgAl			CGGATTGTAAGGGCTGGCGCGGGCTCAGGCGGCCGTGCGTG	ArgProAlaArgGlnGlyLeuGlnGlyGlyGlyAspValProGlnProValArgProArg	···TTGCGTCCAGGGTTGGGAGGGGGGGCGCACGCCCCCCCCCC	HisprovalGluGlyProAspGlyGlyAlaArgA		ArgAlaArgArgAlaGlyGlnGlyAspGlyLeuLeuproGly	
845		857 690	670	664	959	995 645	625	1055	611	1113	1172	572	1226	561	1286	541	1322	522		512		5 6		472		45 0	. د	4	1607

탕	δ	용 :	2	문	<b>Q</b> .	<b>B</b>	Qy	Ď	ΔĀ	당	ν	문	Q.	₽	δ.	₽	Qy	<b>р</b>	8	B	Q	뮻	δ	당	Qy	B	VΩ	문	δ.	B	Qy
985 G	10 /	σ, σ	70	•	124	942	163	922	223	907	283	888	343	868	394	848	454	835	514	815	552	795	586	780	640	763	682	747	727	731	784
singly 986		AlaproAlaArgAlaSer	CONCONCENCY YOUR SHARMS PHASSELY VALUE CARREST STATE CONTROL STATE CONTR	TGAGGGTGCCGCCGA	. ແ		_ `	SerGlyLeuArgProSerGlyProAlaArgHisHisAlaLeuGlyArgArgGlyProAla 941	AGCCGGGCGGCGACCACCAGGCCCGACACGTCGACCCGGGTGTGCGGCGGCGGCGTCCGACA 164	lHisProHisLeuAlaValProGlyHisAlaArgArgArgArg 921	TGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTCGTGGGTGTGCGAGTCGATGA 224	uHisArgArgGlyProArgHisAlaAspArgGlyGlyArgGlyLeuLeuGlnArgVa 907	GCGGCGCCAGGCTGATGCCGCAATTGCCCGTGACCACGTGGTGACGCCCTGCGAGATCT 284	gGlyValProArgGlyProValGlnProGlyAspAlaArgGlyHisLeuGlnGlyGlnGl 888	AGCCGCCTTCGTCCAGCAGGTCCAGGGGGGCGGGCGGGTTGGCGTGCGCCA 344		w	lLeuLeuGlnHisGlnGlyArgAlaLeuArg	_	œ.		uProHisArgAlaHisAlaThrLeuGlnProArgHisLeuHisGlyArgValArgArgAs 815	TGGCGCCGCTGGCCATGGCTTCCTC 553	 	58	Proval7		spProLeuGlnGly 76	68	ArgLeuGlyProGlyProAlaArgGlyProHisGlyArgAspGlyArg74	72
		-			`	• (	,,	-		_	4	7	4	00	4			co i	UI .	υī	UI.	Сī	ú	ο̈́.	37 .	19	<u>.</u>	2	ຘ	<u>.</u>	28

oleted: May 11, 2003, 12:12:51 84.5 secs

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USER-USI0009782_@CGN_1_T_42_@runat_07052003_122519_23229 .NCP.
NO_XLDXY -NO_MMAP -LARGEQUERY -NEG_SCORES-0 -WAIT -LONGLOG -D.
WARN_TIMEOUT-30 -THREADS-1 -XGAPOP-10 -XGAPEXT-0.5 -FGAPOP-6
-YGAPOP-10 -YGAPEXT-0.5 -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic -
                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,
                                                                                                                                                                                                                                                                                        and is derived
                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          n2p.model -DEV-xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                               Match
                                                                                                                                                                                                                 Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pending_Patents_AA_New:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                May 11, 2003, 12:12:55; Search time 77 Seconds (without alignments) 7808.619 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             787003 seqs, 171007862 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          us-10-009-782-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gaattecacttgategegga.....ceetgagetaegagaagett 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                            by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                       /cgn2_6/ptodata/2/paa/US60_NEW_COMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                          /cgn2_6/ptodata/2/paa/PCT_NEW_COMB.pep:*
/cgn2_6/ptodata/2/paa/US06_NEW_COMB.pep:*
/cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*
/cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*
                                                                                                                                                                                             Length DB
                                                     US-10-156-761-11333
US-10-366-683-17231
US-10-419-128-17231
                                                                                                                US-10-282-122A-50211
US-10-282-122A-60254
US-10-156-761-10819
                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                        /paa/US10_NEW_COMB.pep:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1574006
                                                                                                                                                                                   Description
                                 Sequence
Sequence
                                                                       Sequence
Sequence
                                                                                                                            Sequence 5021
Sequence 6025
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EV_TIMEOUT=120
-FGAPEXT=7
```

																	•																			
	40	4		) ( ) 4	3 1	4	40	39	88	3/	10		4 1	. u	2 2	) (a	ט נ	2 6	9 0	) N	. 4	א ה	21	) t	اد	2 2	מני	2 4	9 6	, ,	1 0	, ,	<u>.</u>	4	<u>ا</u> د	3
	394	. U	9 4 0	2 4	0 (	u	ဌ	401.5	2	02	,	404	407	407	0	_	2 9	408.5	٠.	410	۰	٠,	412.5	Jb	J	223	N	) K	) K	, ,	, ,	Jι	J (	، ىد	431.5	w
٠	11.9	12.0	. L2. 0	1.7.	1 -	1. 1.	12.2	12.2	12.2	12.2	12.2	12.2	12.3	12.3	12.4	12.4		12.4	12.4							3.0										
	w	$\circ$	_		١.	1 4		639	2	4	2	1053	0	639	672	672	638	638	۷.	1706	١ ٧	. / / 4	100	900	000	801	1149	1	1002	2	0	100	10	9 6	500	, L
	σ	6	0	σ	٥	,	ν.	σ	σ	o	σ	Ġ	σ	σ	σ	σ	σ	σ	6	0	0	σ	nø	٥	١٥	0	σ	a	a	σ	σ	σ	٥	n c	n o	n
	10-366-683-309	10-419-128-250	10-366-683-250	10-419-128-317	TU-366-683-31/	10 200 100 200	10-419-138-38	10-366-683-28	10-419-128-32	-10-366-683-32	-10-419-128-26]	-10-366-683-26	-10-419-128-20	-10-366-683-20	-10-419-128-16	-10-366-683-16	-10-419-128-27	-366-683-2	-10-419-128-31	-10-366-683-31	-10-419-128-16	-10-366-683-16	-10-419-128-26	-10-366-683-26	-10-419-128-29	10-3	-10-419-128-2555	-10-366-683-2555	-10-419-128-2798	-10-366-683-2798	-10-419-128-3220	-10-366-683-3220	-10-419-128-2192	10-300-683-2192	-10-366 623 3184	-10-110 100 000
	30909	25050	25050	31715.	31715,	28453,	20403,	200007	equence 33367	equence 30367	26140	equence 26140	equence 20571.	20571	equence 16941	CP 15041	equence 27068.	270	31760.	31760.	16789.	16789,	e 260	26099,	e 29274,	e 29274,	equence 25557.	equence 25557.	equence 27980.	equence 27980	equence 32204	equence 32204.	e 21920,	equence 21920,	equence 30843,	
							-	•	-	•	•		•	•		•	•	•					_		_	<b>&gt;</b> :	-	•	٠.	-	-	_	•	_		

## ALIGNMENTS

CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-09-06
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625 S-10-282-122A-50211 Sequence 50211, Application US/10282122A GENERAL INFORMATION: APPLICANT: FILE REFERENCE: ELITRA.034A APPLICANT: APPLICANT: APPLICANT: PPLICANT:  $\Gamma: XU$ , H.INVENTION: Identification of Essential Genes in Microorganisms Carr, Grant Yamamoto, Robert Forsyth, R. Ohlsen, Kari Zamudio, Carlo Malone, Cheryl Trawick, John Wall, Daniel Zyskind, Judith Haselbeck, Robert Liangsu Carlos 60/257,931

```
Ş
                                                                                                                         밁
                                                                                                                                                      Ş
                                                                                                                                                                                         밁
                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-009-782-1 (1-1758) x US-10-282-122A-50211 (1-475)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Burkholderia mallei
US-10-282-122A-50211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.1
SEQ ID NO 50211
LENGTH: 475
778 ATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCG 837
                                211 TieLeuGluhlaMetAspGluhlaTyrArgValGlyArgH1sAlaArgValProValVal
                                                                                                191 GluproieualaasnalaGlyalaValTyrThrThrHisMetArgThrGluPheAspala 210
                                                                                                                  658 CGGCCGCTGAGCGCGATGGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCAC 717
                                                                                                                                                             171 SerGlyLeuAlaTyrGlySerAlaPheAlaAlaProThrGluGluValMetAlaLeuAla 190
                                                                                                                                                                                            598 ACCGGCGCCTTCTACCCGCCGCCGCCGCGCCACCACCGAAGAGATCATCGAGGTGTGC
                                                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                                     538
                                                                                                                                                                                                                                                                                          131 HisThralaLeuargSerAsnGlnMetAspArgLeuAspargalaAlaThrGlyAlaGlu 150
                                                                                                                                                                                                                                                                                                             478 CATTCAACGCTGCGCGCGCGGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAGGAA 537
                                                                                                                                                                                                                                                                                                                                                          118 -----AlaAlaLysProAlaValAsnValAlaAlaLeuValGly 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 78614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                          418 GACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                                                                                                                          358 CCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 CACGACGACACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTC 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301 ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCG---CACGCCAAC 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 CACACCGGGTCGACGTTCGAGGCCTGGTGGTCGGCGCCCGGGCTTCATCGACTCGCACACC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 GACCTGGGCGTGCGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69 HisAspAspThrHisVallleAspAlaProGlnMetLeuProLysileSerGlnGlyVal 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49 GluGlnValValGluAlaAsnGlyArgAlaLeuAlaProGlyPheValAspValHisThr 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29 AspValAlaIleArgGlyAspArgIleValAlaIleGlyAsnLeuThrAsnTrpLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9 AspThrLeuIleValGlyAlaGlnLeuTyrAspGlyThrGlyAlaProSerValGluArg 28
                                                                                                                                                                                                                             IleAlaAlaMetArgAlaGlnLeuGluGluAlaLeuAlaH1sGlyAlaLeuGlyLeuSer 170
                                                                                                                                                                                                                                                            ATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCG 597
                                                                                                                                                                                                                                                                                                                                                                                                                         ProProAspProMetAsnLeuGly----- 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.77e-31
1111.50
61.93%
48.56%
33.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches:
Conservative:
Mismatches:
Indels:
                                    230
                                                                                                                                                                                                657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
```

문

•													_								
SE	ρ <b>4</b>	B	o.	н ^		_															-
US-10:22 US-10:25 ; Sequence ; GENERAL APPLICE CURRENT CURRENT CURRENT CURRENT CURRENT CURRENT CURRENT PRIOR APPLICE CURRENT CURRENT CURRENT CURRENT CURRENT PRIOR APPLICE CURRENT CUR		õ		₽ Q	B	VΩ	당 .	ov B	Qy	В	ν	G	νQ	용 :	Q V	B 5	g 5	VQ.	B	γQ	D
	1498 (	451		1378	411	1318	391	371 1258	1198	351	1138	ü	1078	311	1018	291	271	898	. 251	83	231
82-122A-60 RC 10254, AL INFORMAY, AL INFORMAY, ICANT: Wann ICANT: Mail ICANT: Has ICANT: Waln ICANT: Zys ICANT: Yan ICANT: Yan ICANT: Yan ICANT: For ICANT: For ICANT: For ICANT: Has ICANT: Applican INT Applican IN	CAGCC	Alapı	GCGT	GAGO		GACC	Leus IIII:		::-CAC3	Teu]	CIG	Ser				,				8	
9009 b wassa: 2: 4 cay 6 8	CAGCCCTTACAATCCGGC         AlaProAlaThrProGly	OThr	CACC	9000	IIII euVa	TGGT	CisacceCCGCGCG    :::      LeuSerAlaArgAr	YFAL	ATGC	ProAs	<b>1</b> 0002		GAACI	Serie	4004		Sers	HCCA	rLeuc	SATC	  Ser
pplicati ON: Clarge dio, Car ne, Cher libeck, R en, Kari ind, Jud ind, Jud ind, Jud ick, Joh ick, Joh crant incto, Rol ith, Grant inth, Gr	CAAT( ThrP	Glyv,	CGCC	CCC	l:::	GTG	PAral	aArg	- GCGC	nAsp	CGAC	PASP	7.00	:: ::	THOL		erTh	CCAT	luAr	AGGC	HisLe
Application US/102 TON: TON: Udio, Carlos one, Cheryl elbeck, Robert sen, Kari kind, Judith I, Daniel Alck, John r, Grant GON: Identification ELITRA. 034A TION NUMBER: US/10/ NATE: 2003-02-20 N. NUMBER: 60/191,0	71907  -   -	alArç	AGCA:	GCAT	heAs	TCGA	raph 	AspG	GACC	ProL	GAGC	Vala	Taba Napa	7	Solds	1000	rLeu	GCTC	gAla,	2000	uLys 
gsu Carlos Carlos heryl , Robert ari ari Judith del Judith sentificati k. 0344 Robert R. 0203-02-20 JER: 60/191.	1515	Alag	eGlu <i>l</i>	CCAT	PAla	CCCG	- CGGC	uArg	OBDD1	euPrc	GCCC.	rgAr;	TaAL	Teer	LuMe	AACT	lids	AAGCA	ArgAz	ATGG	Cysa]
US/10282  rt  cation o	J.	114Ar	Lava GCCG	CCGT	NLAAL	CACAC	CIGG	LeuI	CTGT	H1SP	CATC	Tell   	aArg	GCCC	tAlac	GAGC	eLys	GGAC	gile	GCGC .	laGly
122 2,1		l gPhev	LTrp	GTAC	gVal	GGTG	00000	leSer	TCCC	roArg	CGCG	euSe:	rgLe	AGCT	З1уГу	366CG	31nA1	cece	GlnPı	CAGG	Pros
sen		roThrGlyValArgAlaGlyArgPheValAlaArg-	CGTTCACCGGCCAGCATGCCGGCCGCGCGTGCTCGCACGCA	GAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCGC		GACCTGGTGGTGTTCGACCCGGCCACGGTGGTGGTTGTTATATCCCCCCCC	- NAN-U-U-U-U-U-U-U-U-U-U-U-U-U-U-U-U-U-U-	TyrTyrAlaArgAspGluArgLeuIleSerLeuGluAspAlavalArgLysMetThrAla	ACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC		CIGI		GACGAACCCACCACCACCACCACCACCACCACCACCACCA	Valserglucipaga, 1,11,22, [11]	ASPECONISPIOGIUMETAlaGlyLysLeuLeuArgThrIleAlaAlaGluTrpArg	**************************************	SerSerSerThrLeuAspIleLysGlnAlaThrGlyAspIleAspIleThrIleThrTrp	GGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGG	SerLeuGluArgAlaArgArgIleGlnProValGlyCysAspCysTyrProTyrS	CTGATCGAGGCCGCATGGCGCCAGGACGTCTCGCTGGACGTCGCTTGATTATATATA	
tial		 	nGly.	1111 2995)	pAla	LyGlu	GCAC	luAsi	AGAC	rpgl	6666	eccc	· roAl	AGCCGGCCGGCGCCATCTAC	LeuAI	TIGGE	GlýAs	CTGG	Glyc	TOGO TO	:::  :::
Gene	•		AlaLe		HILL Alari	IVala	CIGC	)Alav	3GCGG	YAlai		GACC	aGly,		gThr	TGAA	pile	200G#	Jeve 11	TGGA	
n H		1 6	rasne	CGGTC	hr Phe	rgVa	AGGC	'alar	TATG	hepr	שייים ראס מיים ראס	ATGA1	Alava	GCCA:	IleA	GTCG	AspI	CGCA	Cysi	ים היים	
M1CI		6	Tyra	Teec	GAAC	1G1 Y1		J	GAAG,	0Arq	ATATA	1111	lTyr	CTAC	laala	2000	leTh	CCAT	YrPr 	19 00 1	<u></u>
coorg		GlyGluArg	rgAsı	AAGA	ACCC	утні	PACTI	Meta)	ATGAC	711a 	SerA	TCCG	H1sA	TTCA	GluT	CGAGC	rilei	CATC	OTYE	TRAN	_
Microorganisms			bel A	GCAG	TACC	SAla	2000	TATA	20000	7 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [	Tods	ACGG	snMe	TGAT	rpAr	9929	Tradit	CCTG	SerAro	Leua	Ξ
₹		1497 466	450	1437	1377	410	1317			370			2330	3 1077	9 310	C 1017			C 897		
·							•	,	-	7		7		7	_	7	-	- (	, 7	. 0	)

```
Ş
                                                                                  밁
                                                                                                                 S
                                                                                                                                                   밁
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-009-782-1 (1-1758) x US-10-282-122A-60254 (1-479)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JS-10-282-122A-60254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Pate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Remaining Prior Application data removed - See File Wrapper or PALM.
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                       538 ATCGCGGCCATGCGGACCTGGCCGAGGAAGGCATGGGCCAGCGGCGGCGCGTCGGCATTTCG
164 IleAlaGlyMetArgValGlnLeuArgAspAlaLeuArgGlnGlyAlaLeuGlyLeuSer
                                                                                                                                   124 AlaTyrAlaHisAlaValGluAlaAlaArgProSerLeuAsnValGlyThrLeuIleGly
                                                                                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                 181 CACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                            84
                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OR FILING DATE: 2000-05-26
OR APPLICATION NUMBER: 60/230,335
OR FILING DATE: 2000-09-06
OR APPLICATION NUMBER: 60/230,347
OR FILING DATE: 2000-09-09
OR APPLICATION NUMBER: 60/242,578
OR FILING DATE: 2000-11-27
OR APPLICATION NUMBER: 60/253,625
OR APPLICATION NUMBER: 60/253,625
OR APPLICATION NUMBER: 60/253,625
OR APPLICATION NUMBER: 60/253,625
OR APPLICATION NUMBER: 60/253,625
OR APPLICATION NUMBER: 60/253,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DR APPLICATION NUMBER: 60/257,931
DR FILLING DATE: 2000-12-22
DR APPLICATION NUMBER: 60/267,636
DR FILLING DATE: 2001-02-09
DR APPLICATION NUMBER: 60/269,308
DR FILLING DATE: 2001-02-16
                                                                                                                                                                                                       ValProAspProMetAsnLeuLeuGlyGluGlnGlnHisPheIleTyrProThrValGlu
                                                                  H1sThrAlaLeuArgAsnAsnH1sMetAspAspLeuPheArgProAlaAsnGluThrGlu
                                                                                                    CATTCAACGCTGCGCGCCGCGTCATGCCGGACTTGCAGCGCGCCGCCGCCACGAGGAA
                                                                                                                                                                                                                             CCGCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCC
                                                                                                                                                                                                                                                                                                                                             HisAspAspIleAsnValIleArgMetProGluTyrLeuProLysLeuSerGlnGlyVal
                                                                                                                                                                                                                                                                                                                                                                             CACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGGCGTC
                                                                                                                                                              GACTACCTGGACGCTTGCGGGCCACGCCGGCGGCGTCTAACGCCGCCTGTATGGTGGGC
                                                                                                                                                                                                                                                                                                  ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCCGCTGGCG---CACGCCAAC
                                                                                                                                                                                                                                                                                                                                                                                                               {\tt GluGlnValIleAspGlyGlnGlyArgValLeuAlaProGlyPheIleAspValHisThr}
                                                                                                                                                                                                                                                                        AspValAlaValLysGlyAspArgIleMetAlaIleAlaProAlaLeuAspValAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCTGGGCGTGCGCGACCGCATCGCCCATCGGCGATCTGTCGGACGCCGCGCGC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGGCGGCGCGCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/
FILING DATE: 2000-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/207,727
FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.63e-31
1106.50
63.29%
48.73%
33.54%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/206,848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              479
231
69
171
                                                                    163
                                                                                                                                                                       477
                                                                                                                                                                                                         123
                                                                                                                                                                                                                                            417
                                                                                                      537
                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23
```

```
Sequence 10819, Application U
GENERAL INFORMATION:
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN.
APPLICANT: HORIKAWA, HIROSH
                                                                                                                                                          RESULT 3
US-10-156-761-10819
                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     닭
                                               APPLICANT:
                                   APPLICANT:
                   CITLE OF
                                                                                                                                                                                                                            1435 CAGGCGTTCACCGGCCAGCATGCCGGGCGCGCGTGCTCGCACGC 1476
                                                                                                                                                                                                                                                                                                 1378
                                                                                                                                                                                                                                                                                                                                                         1318
                                                                                                                                                                                                                                                                                                                                                                                         1258 CTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGGC 1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1198 CACTATECGCÉCGACCTEGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1138
                                                                                                                                                                                                 1018
                                                                                                                                                                                                                                                                    444
                                                                                                                                                                                                                                                                                                                             424
                                                                                                                                                                                                                                                                                                                                                                                      404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  344 AspGluGinAspValArgArgValMetArgTyrProValThrMetIleGlySerAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             958 TGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGGCGAGCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               898 GGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGACCATCATCACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     264 PhePheAspGluMetArgGlnGlnAspIleAlaCysAspCysTyrProTyrSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                598
ANT: ISHIKAWA, JUN.
ANT: HORIKAWA, HIROSHI
ANT: SHIBA, TADAYOSHI
ANT: SAKAKI, YOSHIYUKI
ANT: HATTORI, MASAHIRA
DF INVENTION: NOVEL POLYNUCLEOTIDES
EFERENCE: 249-262
                                                                                                                                                                                                                                                                                                              ArgProAlaAspGlyIleGluAlaValMetValAsnGlyValMetSerTyrGlySerAsp
                                                                                                                                                                                                                                                                                  GAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGG----CAAGAG
                                                                                                                                                                                                                                                                                                                                                                          LeuSerAlaAlaArgPheGlnLeuAlaAspArgGlyLeuValLysIleGlyTyrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                  HisTyrSerArgAspGluGlnLeuPheProLeuThrThrAlaValH1sLysMetThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCCGCACGACGAGCGCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerGluAlaGlnProGluGlnAlaGlyLysThrLeuGlnGlnIleAlaAspGluTrpGln 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerSerSerThrLeuAspMetLysGlnValThrAspGluPheAspIleValIleThrTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValSerHisHisLysCysAlaGlyAlaLysAsnTrpGlyArgThrLysGluThrLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCTCGCACCACGAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLeuGluAlaLeuAspGluAlaSerArgIleGlyArgH1sGlyAsnValProValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluGluLeuAlaAlaGlyLysGlyValTyrThrThrHisLeuArgSerGluPheGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCCGCTGAGCGCGTATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCGTGGCCGCGCTGGAGGAAAACCTTCCGCATCGGCCGGGGGCTGGACGTGCCGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrelyLeuAlaTyrAlaSerAlaPheGlnSerThrThreluGluValMetAlaLeuAla, 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTGC
                                                                                                                                              US/10156761
                                                                                                                                                                                                                                                                                       1434
                                                                                                                                                                                                                                                          463
                                                                                                                                                                                                                                                                                                                                                                           423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1257
                                                                                                                                                                                                                                                                                                                                                                                                                                    403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    657
```

```
S
                                                       밁
                                                                                  Ş
                                                                                                                                             Ş
                                                                                                                    문
                                                                                                                                                                               밁
                                                                                                                                                                                                         S
                                                                                                                                                                                                                                         뎡
                                                                                                                                                                                                                                                                 . ₽
                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: JF 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 10819
LENGTH: 530
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-009-782-1 (1-1758) x US-10-156-761-10819 (1-530)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Streptomyces avermitilis US-10-156-761-10819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/156,761 CURRENT FILING DATE: 2002-05-29
        730 CIGGAGGAAACCIICCGCAICGGCCGCGAGCIGGACGIGCCGGIGGIGAICICCGCACCAC 789
                                      211 GluTyrGlyGlyTyrTyrCysProHisHisArgSerTyrGlyAlaGlyAlaLeuGlnAla 230
                                                                    670 GCGCATGGCGGCATCTACGCCACCCCACATGCGGGACGAAGGCGAGCACATCGTGGCCGCG
                                                                                                                                                610
                                                                                                  191 TyrThrProGlyMetTyrAlaGluAspAlaGluLeuThrGluLeuCysArgValValAla 210
                                                                                                                                                                               171
                                                                                                                                                                                                          550
                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                      490
                                                                                                                                                                                                                                                                                     132 ArgLeu---AspGlnGlyIleAlaValAsnAlaAlaTyrLeuIleProGlnGlyThrVal 150
                                                                                                                                                                                                                                                                                                                    430 GCGTTGCGGGCCACGCCGGCGGCGGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTG
                                                                                                                                                                                                                                                                                                                                                                                              370
                                                                                                                                                                                                                                                                                                                                                               117
                                                                                                                                                                                                                                                                                                                                                                                                             102 LeuAlaGluValArgArgAlaIleThrGlyTrpAsnGlyHisGly------ 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                            346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        238 ACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGGC 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42 GlyArgArgValLeuAspAlaGlyGlyLeuAlaLeuAlaProGlyPheTleAspMetHis 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22 AspValGlyIleThrGlyGlyArgIleAlaGluIleArgArgAspGlyProAlaLeuGly 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GACCTGCTGCTGGCGGGGGGGGGCACCTCATCGACGGCAACACCCCGGGGGCGGGGGGGCGCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 AspLeuValIIeArgAspValArgValValAspClyThrGlyGlyAlaSerCysArgAla
                                                                                                                    CGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTC 609
                                                                                                                                                                                                                         ArgMetLeuAlaValGlyTrpGluAspArgAlaAlaThrProGlyGluLeuAspArgMet 170
                                                                                                                                                                                                                                                      CGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGAAATCGCGGCCATG 549
                                                                                                                                                                                                                                                                                                                                                 ---AspAspIleAsp------PheThrTrpArgSerValGlyGlyTyrLeuAsp
                                                                                                                                                                                                                                                                                                                                                                              CTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaHisSerAspLeuAlaLeuLeuArgAspProAspHisSerAlaLysAlaAlaGinGiy 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValThrLeuGluValValGlyGlnAspGlyLeuSerTyrAlaProValAspAspArgThr 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTG------ 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9e-16
659.00
46.34%
33.33%
19.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative: Mismatches:
=
                                                                       729
                                                                                                                                   669
                                                                                                                                                                                                                                                                                                                                                                                429
                                                                                                                                                                                                                                                                                                                     489
                                                                                                                                                                                                                                                                                                                                                  131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
```

RESULT 4. US-10-156-761-11333

Sequence 11333, Application US/10156761 GENERAL INFORMATION:

APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI

APPLICANT:

	Дb	QΨ	DЪ	οý	₽	Qy	Ф	Qγ	DЬ	Qy	- Db	Qy	ф	Ωу	Дb	Qy	DЬ	δĀ	ф	Qy	Db.	<b>Q</b> Y	Db	Qy		Qy	, <b>D</b>	Qy	Ф	Qy	ф
. !	523	1462	503	1402	483	1342	463	1282	443	1222	423	1162	403	1102	383	1081	363	1054	343	1039	323	1021	303	964	291	907	271	850	251	790	231
- J Author Authority 200	:::	CGCACG 1479	522	GOCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGC 1	ThrValAlaAlaGlySerThrPheGluAspProArgArgLeuProAlaGlyLeuProHis 502	_	ProAspArgGlyLeuValArgGluGlyTyrArgAlaAspLeuValLeuPheAspProSer 482	_	LeuSerLeuGluGluCysValalaHisLeuThrGlyArgProAlaAlaArgLeuArgLeu 462	_	ProArgAlaTyrGlyThrPheProHisTyrLeuGlyHisTyrValArgGluLeuGlyVal 442		MetargHisargValHisThrGlyGlySerAspGlyIleLeuGlnGlyThrLysProHis 422					3	rValGlySerThrValGln		HisalaMetGluValValGlyAlaAspGlyCysHisGlyValProIleGluTrpAspThr 342		GlyGlyProGluAlaValLeuAlaArgLeuArgAspAspThrValAlaGluArgIleArg	CCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCGAGCGGGCGAAA 1020	ThrLeuValAlaMetLeuProSerTrpAlaGlyGlu	ATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAG	AlaLeuAlaGluGlyAlaAspIleThrLeuAspThrTyrProTyrThrProGlyCysThr 2	GCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACC	ThrMetAsnPheGlyValasnLySGlyArgAlaProAspLeuLeuAlaLeuLeuAspGly 2	AAGGTCATGGGCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTGCCGCTGATCGAGGCC	l TyrGluGluMetValAlaLeuThrArgGluAlaArgCysProLeuHisLeuAlaHisAla 250

```
Š
                                                                                                                                     밁
                                                                                                                                                                 ş
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
VUMBER OF SEQ ID NOS: 15109
SEQ ID NO 11333
LENGTH: 576
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-009-782-1 (1-1758) x US-10-156-761-11333 (1-576)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Streptomyces avermitilis
US-10-156-761-11333
                     TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-262
218 AlaGiuLeuLeuAlaLeuAlaArgAlaValGlyGluHisGluGly-------
                                                                                                                    178 ArgMetLeuAlaLeuPheH1sGluAlaMetAspAlaGlyAlaTrpGlyLeuSerThrThr 197
                                                          ||| ||| ||||:::||| |||
198 GlnSerSerThrHisSerAspGlyAspGlyGlnProValAlaSerArgHisAlaArgPro 217
                                                                                                                                                  544 GCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGACC--- 600
                                                                                                                                                                              158 ArgArgTyrValMetGlyProAspAlaValGlyGlyArgProThrArgGluGlnLeuGlu 177
                                                                                                                                                                                                                                          139 AlaLeuGluGlyArg---IleAlaValAsnAlaGlyPheMetValGlyHisCysAlaLeu 157
                                                                                                                                                                                                            490 CGCGCCGCGGTCATG---CCGGAC---TTGCAGCGCGCCGCCACCGACGAAATCGCG 543
                                                                                                                                                                                                                                                                       430 GCGTTGCGGGCCACGCCGGCGGCGCCTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTG
                                                                                                                                                                                                                                                                                                 376
                                                                                                                                                                                                                                                                                                                                                                                                                        361 CCCGCCCCCTGGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 CACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 CACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCGGCTTCATCGACTCGCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 GACCTGGGCGTGCGCGGCGACCGCCATCGCCGATCGGCGATCTGTCGGACGCCGCGCG 180
                                                                                                                                                                                                                                                                                                                                                              99 AspArgProGlnAspAlaAspTyrThrArgArgMetMetSerLysValGluGlyMetSer 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 HisTyrAspAlaGlnLeuPheTrpAspProTyrAlaThrProSerLeuAsnHisGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGAC 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgAlaGlyGluAspAlaAlaGlyLeuValLeuAlaProGlyPheValAspProHisThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.31e-11
539.00
44.29%
30.15%
16.34%
                                                                                       --GECGCCTTCTACCCGCCCGCCCGC---GCCACCACC 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            576
177
83
185
142
                                                                                                                                                                                                                                                                                                                                                                                               .---- 375
                                                                                                                                                                                                                                                                         489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22
```

				•		٠																								
40	용 성	B	8 B	Qy	문	VΩ	용, 4	& B	Qy	Ъ	Qy	Дb	γQ	망	ð.	B :	0 5	} &	. 문	·	dd.	YQ Y	ઠ	ν	В	γo	рь	Qγ	D <sub>C</sub>	Qγ
1450 C 558 A	, α , c	18	498 1 1354 £	7	478 /	1237	0	443	1117	424	1084	404	1042	384	982		9 4 2 4 4 8	892	324	886	305	850	288	817	268	814	248	757	233	. 697
_	o – e		8 Ilea	7		7	ThrArgPheLeuGlyAspCvgLeuArgGlvArgIvgTeuvalteviceCGCTgGGCCTGTTCCCGCTGGAGA	<b>7</b> W	7	  ProAspSerTrpAlaLeuArgAlaGluThrTrpArgHisLysAspValLeu	4 CCCGACGTGCAGCGCATCCTGGCG	:::   GluIleCysAlaAlaAspGluLeuArgThrValLeuTrpProMetProTh	- က	:::::::::::	82 GGGCGCGACCTGGATGAAGTCGCGGCCGA	64	** valArgAlaGluLeuLeuArgArgAlaAs	92 GTGGCCGGCTCCACCATGCTCAAGCAGG	24 TrpGlyGluValLeuGlyLeuProValProGluArgIleAlaArgLeuArgAsp	86	05LeuThrProMetAsnMetSerLeuGlyThrPheCysAlaLeuAsnLeuIleProG	50 GCCATGGCGCGCCAGGACGTCT	88 GluArgAlaArgLysAl	cccrcccccac	68 AsnValLeuThrIleAspAlaAlaValProGluArgValProArgGlnLeuThrAlas	ရွ	248 AspalaGluIieAspLeuPheValGluMetSerAlaAlaAlaGlyArgProieuAsgTrn	57	233ThrGlnIleGluAlaIleValAlaGlvCvsI-manClrDhc	97
	1449 557	537	517	μ.	497	120			<u>.                                    </u>	442		423		403		ı vo	u 363	G 927						20 6			36. C			7

RESULT 5

```
S
                                                          밁
                                                                                          δÃ
                                                                                                                                  밁
                                                                                                                                                                    Ş
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-009-782-1 (1-1758) x US-10-366-683-17231 (1-2294)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Pseudomonas aeruginosa
US-10-366-683-17231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SECTION OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND FILE REFERENCE: PATHO3-04
CURRENT APPLICATION NUMBER: US/10/366,683
CURRENT FILING DATE: 2003-02-13
PRIOR APPLICATION NUMBER: 09/252,991
PRIOR FILING DATE: 1999-02-18
PRIOR FILING DATE: 1999-02-18
SEQ ID NO 17231
SEQ ID NO 17231
SEQ ID NO 17231
LENGTH: 294
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S-10-366-683-17231
Sequence 17231, Application US/10366683
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT: Rubenfield, Marc J.
513 GCAGCGCCCCCCCACCGACGAGGAAATCGCGGCCATGCGGGGACCTGGCCGAGGAAGCCAT 572
                                      832 lyAsnCysPro--------ArgProAlaProArgArgSerProThrs
                                                                                                              816 laileAlaThrThrGlyArgSerPro------ArgCysAlaThrArgProThrG 832
                                                                                                                                                    393 CTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGC 452
                                                                                                                                                                                                                      342 GCTGGCGCA-----CGCCAACCCGCCCGCCCCCTGGACCT---GCTGGACGAAGGCGG 392
                                                                                                                                                                                                                                                                    791 -----ArgargValproalaala
                                                                          797 AlaAlaAlaHisArgArgArgProAlaGlnGlyGlnGlyProGlyAlaGlyHisArg--A 816
                                                                                                                                                                                                                                                                                                      282 CAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCCATCAGCCTGGCGCC 341
                                                                                                                                                                                                                                                                                                                                          771 ProLeuGlyGlyAspHisProArgArgArgAlaValArgGlnArgGlnArgGlnArgAla 790
                                                                                                                                                                                                                                                                                                                                                                              222 CTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                    751 GlyAlaLeuProArgArgArgHisGlnGlyProAlaGlyGlyGlyGlyArgArgArg 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                          731 ProGlyAlaGlyH1sArgProProGlyGlyAlaAlaAlaGlyAspArgAlaAlaThrPro 750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        165 GTCGGACGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        711 AspGluAlaGlyArgArgArgAlaGlyValGlnAlaHisProArgHisArgArgAsp 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  691 AlaValGlyArgTyrArgHisArgProGlyLeuAlaAlaGlyLeuAlaValArgProAla 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            675 LeuAlaArgProGlnArgAspAlaArgProProPheAlaIle------ProAla 690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9 CTTGATCGCGGAAGGAGAGTTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCT 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCGCGGGCGCACCCTCATCGACGGCAGCAACACCCCGGGGCGGCGGCGCGCCGACCT--- 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nolling, Jork
Deloughery, Craig
Bush, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8.45e-09
455.00
34.51%
29.97%
13.79%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCES RELATING TO PSEUDOMONAS AND THERAPEUTICS
                                                                                                                                                                                                                                                                      1 796
                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                              221
```

		•					٠.							٠.															
р. <sub>О</sub> у	, D 40	뭥	5 B	ş 2	B 2	å å	Ş	Дb	Qγ	문 :	Q V	g 4	, B	Qy	B 4	o, i	B. 5	말	ν	밁	δδ	В	Qγ	. B	VΩ	말	Qγ	B 7	S B
1239 1180	1209 1160	1140	1170	1137	1101	1081	. 1074	1061	1017	1041	98	1021	. 1001	924	981	897	96 8	94	<b>80</b>	9	76	905	<b>~</b> 1				on.	m .	
		77	ດ் ₩		<b>&gt;</b> C										-		1		28 – ഒ		68 G		29 G	4 588	693 C	7	ω		573 6
GGTÄTGGAAGATGACCĞGCCTGACCGCCCC-    :::        GlyLeuGlyAspAspLeuArgProArgArgArgG	CGACCTGGG	:::	PALAALAGLYGL GGGCACCTTCC	CCTGCCGCAGACGAGCGCCCGCATCCGCGCCT-	AICCIGGCGTICGGCCGACCATGATCGGCTCCGA	:::  ProGlyGlnProArgProGlyGlyGlnGlyArgLeuAlaG	GATGGACGA	E-uargLeuvalValHisargargSerGlyalaalaGlyHisargArgProLeuTyrHis	-CAAATCCAAGI	LeuProAlaArgArgThraspClvarargTournell		CGARCTGAGCGG	AlaginAlaglyGinAlaglyArgGinArgAlaAlaGinProvalArgVa	CGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAA-	ArgArgHisArgArgAlaGlyAspProGlnAlaThrHisGlyArgGlyProGlyPro	COTTON TO THE	CTGATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGC	AspArgProAlaValProG	GAC	AlaproGlyGlnLeuArgThrValGlyLeuGlyAspGlnProLeuGlyAla	CCGGTGGTGATC	AlaGlyAlaArgProAlaArgPr	CTGGAGGAAACC	ProTyrSerArgAlgAlaArgAsnGluArgLeuProGlnLeuLeuArgAlaLeuGlyGly	CACATGCGCGAC		ACCGAAGAGATO	www.www.deccarrogecarrogaccagcgccarroracccgcccagcgccac 	erSerAlaArgProPro-
CCGGCC	YLeuHisGl	        	nArgArgAr CGCGGGTGC	cgacg	GCCCGACCA	gProGlyGl		   Hisargar	ACGACGTGG	raThragnal		TOA LAATOD!	:: lnAlaGlyAı	GGACGCACC	rgArgAlaG	TUGLYHISA	GCCATGGCG	alProGlyL		euArgThrV	TCGCACCAC	ProAlaA	TTCCGCATC	rgAlaArga	GAAGGCGAG		CATCGAGGTO	CATCGGCATT	roPro
rgaccgccgc            Argargarg	yValLeuAr	  gGlyAlaLe	gAlaArgAr TGGGGCACT	AGCGCCCGC	GATCGGCT	yGlnGlyAr		gSerGlyAl	TGCCCGAGC		TOTAL STEERS		rgGlnArgAl	ATCATCACC	lyAspProG	raGluserA	CGCCAGGAC	${ t lyLeuAspArgLeuProArgAlaAlaHisArgAlaGlyPro}$		alGlyLeuG	AAGGTCATG	oGlu	.GG	  snGluArgL	CACATCGT-		Teccecco	TTCGACCGGC ::      :pArgProMe	AlaT
F :	5 :	ıProAspLeı	gProCysPr	ATCCGCGCC	CCGA     pargvalHi	gLeuAlaGl		IIII aAlaGlyHi	TGCAGCCGG	ATGAAGTCG	PRESENTAL		  aAlaGlnPı	rggtgcàa	lnAlaThrH:	rgArgGlyG.	GTCTCGCTG	euProArgA		lyAsp	GCCAGCCC	roAspHisL		euProGlnL		laThralaG	Carone and a second	GCCTTCTAC	-AlaThrProAlaAlaSerProProLys
gGlyArgPı	CCTGTTCCCGCTGGAGAC	uArgAspA	lyAspP	- F	sArgHisG	⊏	Accc	  sargarge	:Geryarge	HILLIL	raasperu		roValArg		isGlyArg	lnArgAla	GACGCGTA	laalaHis		Gln	AATTTCGG	  euValPro		euLeuArg			,	cceccce	laSerPro
¥ ;	Arg	pAlaAspGln	, ú		lnPro		ACCCGACGTGCAGCG	roLeuTyı	TVETHER	cccce	euArgPro		 ValAlaLeuVal	GCCCT	GG    GlyProGl	GlyArgAr	ICCCTACG	ArgAlaGl	GC	 ProLeuG1	CCGCTCGC	 ArgProAl	CGAGCTGG	  AlaLeuG		Searchadeco	Campan	CGCCCGC	ProLys
14 :	GGC 1	GlnVal 1	ω (		Phearg									200	ACCG YPro	gGln	TGGC 	yPro	GCTGCC	yAla	GCGA	aAla	ACGT	yGly	ic C C C C C	sSer/	avra-	3CCAC	G
268 199	1238 1179	1159	1139	1169	1136 1119	1100	1097	1080	1060	1016	1040	983	1020	971	923 1000	980	968	960	836	940	827	923		w ·	72	884			860
			٠												•														

```
Percent Similarity:
Best Local Similarity:
                                                                    Alignment Scores: Pred. No.:
                                                                                                                      ; ORGANISM: Pseudomonas aeruginosa
US-10-419-128-17231
                                                                                                                                                                                                                                                                                                                                                                        US-10-419-128-17231

Sequence 17231, Application US/10419128

GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS;
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                SEQ ID NO 17231
                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US 60/094,190 PRIOR FILING DATE: 1998-07-27 NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/419,128 CURRENT FILING DATE: 2003-04-21 PRIOR APPLICATION NUMBER: US/09/252,991 PRIOR FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1722 CGAGCTGGGCCAGATCGCCCTGAGCTACGAGAAGCT 1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1614 CAAGGAAGTGATGGGCGCGCGCGCGCGCGCGAGCGCAAGGCCCCGGAA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1330 GlyArgAlaProProGlnValAlaAspHisArgArgAlaGluArgHisArgAlaGlyGly 1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1220 AlaAlaGly-----AlaArgProGlyAlaAlaArgProGly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyArgProAlaArgArgProAlaGlyAlaArgHisArgValAlaGluPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGACCCTGCAAGACCTGTCGCAGGCCAGGCGATCGCGGTCTCGACCCTGTCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       {\tt AlaGlyGlyAspGlyGlyMetAspArgGlnLeuProArgGlnProGluLeuHisArgArg}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGC------CCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGT------GGG 1613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspGluProArgProProAlaProGlyAlaAlaAspArgAsnArgAlaGlnLeuLeuHis 1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGC-----CCGGCGCGCCAGCCCTTACAATCCGGCGT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlnArgArgValGlnAlaGlnProLeuArgGlyThrProAlaValAlaArgProValLeu 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGGGCGCGTGCCGCCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H1sGlnArgAsnProGlyArgGlnSerAspArgProProAspArgGlnH1sGlyAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAACGGCGCGCC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----LeuArgLeuProAlaAlaIleArgArgProAlaArgMetProArgArgValPro 1249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCACCTTCGAACACCCTACCGAGCGCGCCGC-----CGGCATCCATTCCGTGTACGT 1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValArgGlnArgIleArgProAlaArgThrAlaSerHisArgAlaProGlyGlyThrPro 1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATAC 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GlyProAlaArgArgProGlyArgThrAla 1396
           8.45e-09
455.00
34.51%
29.97%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTG 1487
     Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ------GGTCTGGCAAGAGCAGGCGTT 1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----CCCAACCCTGGACGCAAACCGCTACAT 1568
   2294
238
36
239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GAA 1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1295
                                                  õ
                                                                                         밁
                                                                                                                          S
                                                                                                                                                               밁
                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮻
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-009-782-1 (1-1758) x US-10-419-128-17231 (1-2294)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match:
DB:
941 AspArgProAlaValProGlyLeuAspArgLeuProArgAlaAlaHisArgAlaGlyPro
                                                    828 GAC--
                                                                                       924
                                                                                                                          768
                                                                                                                                                               905
                                                                                                                                                                                                                                         885
                                                                                                                                                                                                                                                                          693
                                                                                                                                                                                                                                                                                                               877
                                                                                                                                                                                                                                                                                                                                   633 CACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCAC
                                                                                                                                                                                                                                                                                                                                                                        860 lyAlaAlaThrProSerArgTrpArgProMetProAla-----ProLysAlaAla- 876
                                                                                                                                                                                                                                                                                                                                                                                                         845 erSerAlaArgProPro-----AlaThrProAlaAlaSerProProLys-----G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 513 GCAGCGCGCCGCCACCGACGAAGCAATCGCGGGCCATGCGGGAACCTGGCCGAGGAAACCCAT 572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      832 lyAsnCysPro-------ArgProAlaProArgArgSerProThrS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 393 CTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGC 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           342 GCTGGCGCA-----CGCCAACCCGCCCGCCCCCTGGACCT---GCTGGACGAAGGCGG 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             791 ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   282 CAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        771 ProLeuGlyGlyAspHisProArgArgArgAlaValArgGlnArgGlnArgGlnArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           222 CTTCATCGACTCGCACACCCACGACGACGACTACCTGCTCCAGGCGTCGCGACATGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              751 GlyAlaLeuProArgArgArgHisGlnGlyProAlaGlyGlyGlyGlyArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731 ProGlyAlaGlyHisArgProProGlyGlyAlaAlaAlaGlyAspArgAlaAlaThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            711 AspGluAlaGlyArgArgArgArgAlaGlyValGlnAlaHisProArgHisArgArgAsp 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              675 LeuAlaArgProGlnArgAspAlaArgProProPheAlaIle-----ProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          165 GTCGGACGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ||| |||||::: ||||||
691 AlavalGlyArgTyrArgHisArgProGlyLeuAlaAlaGlyLeuAlavalArgProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9 CTTGATCGCGGAAGGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCT
                                                                         AlaProGlyGlnLeuArgThrValGlyLeuGlyAsp------GlnProLeuGlyAla
                                                                                                              GCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGA
                                                                                                                                                 AlaGlyAlaArg --- ProAlaArgProGluProAspHisLeuValProArgProAlaAla
                                                                                                                                                                                            GCTGGAGGAAACCTTCCGCATCGG-----
                                                                                                                                                                                                                                                                  CCACATGCGCGACGAAGGCGAGCACATCGT----
                                                                                                                                                                                                                        ProTyrSerArgAlgAlaArgAsnGluArgLeuProGlnLeuLeuArgAlaLeuGlyGly
                                                                                                                                                                                                                                                                                                             His----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lalleAlaThrThrGlyArgSerPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAlaAlaHisArgArgArgProAlaGlnGlyGlnGlyProGlyAlaGlyHisArg--A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------GGGCGTGCGCGCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCGCGGGCGCACCCTCATCGACGGCAGCAACACCCCGGGGGCGGCGCGCGACCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13.79%
                                                                                                                                                                                                                                                                                                -------AlaThrAlaGlyTrp------LysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------ArgCysAlaThrArgProThrG 832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---CCGCATCGCCGCCATCGGCGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----ArgArgValProAlaAla
                                                                                                                                                                                      -CCGCGAGCTGGACGT
                                        --------GCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281
46
```

816

796 341 790 281 770 221 750 173

164

690

8

125

-GGCCGC

728

884

904 767

827 923

90 AspGluproArgProProAlaproGlvAlaAlapanarra	B 4
	•
11111	<b>₽</b>
1356 CGCCACCTTCGAACACCCTACCGAGCGCGCCCCCCCCCC	8 8
OKCETCE 9	ş Ş
0 Va	₽.
YASPAspLeuArgProArgArgArgGlnGluArgGlyAr	6 B
239 GGTATGGAAGATGACCGGCCTGACCGCCCC	<b>Q</b>
ArgProGlyAlaGlyLeuH1sGlyValloux	8 8
H	e p
1170 GIGGGCACCTICCCGCGGGTGCTGGGGGCACTA	Ş
CLUCKET   CONCRETE   8 8	
1101 AspProAlaGlnAlaProProHisArgTrpArgValHisArgHisGlnProPheArg	δ B.
098 CATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGA098 CATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGA	Qy
1074 GATGGACGA	å 5
::::::     LeuArgLeuValValH	g B
017	Qy
	B 5
1021 ArgAspHisArgProAlaArgPheGlyGlnAspHisArgAlaAspGluLe	S B
972	ρy
11111:::	D.
isglyA	<b>9</b>
97 CGGCTC	, S
	Д
837 GCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCCTCCTCCTCCTCCTCTTCTTCTTCTTCTTCTTCT	δõ

_									
	B 2	Q B .	S B	Q D	5 B 5	or-10	Alignme Pred. N Score: Percent Best Lo Query M DB:	OY 1 OY 1 OY 1 OY 1 OY 1 OY 1 OY 1 OY 1	og pb
111	90	- '			37 Le 37 Le	-600	Ma Loc D. Her Wei	1330 1350 1662 1370 1370 1370 1387 772 1387 772 1010 10	1310 1569
CGCCAACCCGCCCGCCCCGGAGCGACGAAGGCGGCTCTTACCGTTTCGAGCG	GCAGGGGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCTGGCGCACACACCTGGCGCACATCAGCCTGGCGCACACACCTGCGCGCACATCAGACCTGGCGCACACACA	ThrArgHisProSerGlyProAlaProArgArgGlnArgArgValPheGlnArgAsp		ProGluArgArgHisAlaArgProArgArgArgValPro	CEGGCGCGCGACTTGCGCGCGCGGCGCGCGCGCGCGCGCGCG	782-1 (1	nt Scores: Similarity: mal Similarity: tch:	lyari haaggi laglilagliyarg yarga yaggi saggi sa	ArgalaalaValProargSerGlyValargArgThrargProGlyArgHisGlnProGlu GGCCCCTCCCTCCGCTCGCAATACGCCCTCGCAATACGCCCTTTTCCT
       3000000	CACCACG	Proserc	1		GCTGCT      AlaAsp	(1-1758)		yArgAlaProProGlnva: AGGAAGTGATGGCGCGCC	Alavalp
CCCCCTGG	GTGGTC1	lyProA	ProGlyA	<b>q</b>	CGCGGGCGG           ArgGlyArg	x US-10	5.37e-0 434.00 34.66% 30.53% 13.16%	ProGINVALALE ProGINVALALE ProGINVALALE ProGINVALALE ProGINVALALE GIGGEGEGEGEGEGEGEGEGEGEGEGEGEGEGEGEGEG	roArgs
ACCTGCT	ACGGGCA	PACCIGO	GACGIGI ;;; laGlnAr	roGluA	rgLeng		<b>.</b>	alAlaAspi alAlaAspi alAlaAspi CGCCTGCGG CGCCTGCGGC         CGCAGGCC         CGAGGCTAC 	erGlyVa NCCGCTC
rggacga 	CGTCACCACGGTGGTCACGGGCAATTGCGGCATCAG        	TCAGGC	THILL STATEMENT OF THE PROPERTY OF THE PROPERT	**************************************	CACCC	683-26129	Length: Matches: Conservative Mismatches: Indels: Gaps:	galaProProGINValalaspHisArgArg AAGTGATGGGCGCGGCGGCCGGCCGGCCGACCGACGCGCCGCGCGCGCGCGCGCGCGCGCGGCG	  ProArgSerGlyValArgArgThrArgProGlyArgHis  CCCTCCCTCCGCTCGCAATArGGCCCCTCGCTTTTTTTTTT
AGGCGGC	CATCAG        HisGln	TCGCGA      ArgArg	reereer	TCGCCGC	-CACCCTCATCGACGGCAGCACACCCCGGG	9 (1-885	10	(GCCGAGCGCAAGGCCCGGAA	ThrArg
CTCTTAC	CCTGGCG	CATGAC( Valphe(	CGCGCC ::: LysArg	ProArg	ACGGCAG     JLeu <i>P</i> he	_	885 214 : 29 : 248 -210	GILLER OF THERAS  AND THERAS  SEQUENCES  AND THERAS  AND THERAS  AND THERAS	ProGly/
CGTTTCC	G	GCCCAAG :::  GlnArgA	CGGCTTC     ArgThrA	GCGATCTO	ACGGCAGCAACACCCCG 			:::	wgHisG
	-	• • •	•	-	cccggg		·	lsArgar CCCAAGG	lnProG.
410	350 119	290 105	230	170 68	11,0 55				
								613 349 369 386 386 PSEUDOMO	v

	급:	" Alanighig-"-"AIGPIOGLYAIGHISAlaGlyAlaArgArgProProAl		
	CGA 13	60 GACCGCCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTC	4. 2	
	3GCCT 1259	00 G-G-G-ACCTGGGCCTGTTCCCGCTGGAGACGGCGG 	. 4	
	oro 4	93 AlaGinArgProAlaAlaGlyAlaAspAlaHisLeuAspGlyLeuArgLe	u u	-
	rec 1	6 CGACGAGCGCCCGCATCCGCGCGCTGTGGGGGCACCTTCCCGCGGGTGCTGGGGC		
	1145 lyPro 392	73	w	-
	;	56 ArgArgProValProArgLeuArgArgGlyArgHisArgP	1 ω	
	=	065 CTACTT	. 10	-
	GCCAT 1064 hrSer 355	337 GlyThr	ω.,	
	euVal 336	317 AlaAla 005 GGCCGA	, o	~ U
	GTCGC 1004	57	. 10	~<
	31	7 ArgGln		σ
	D 1	900 CTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACC		~
	CGG 899	8/3 GCTGGACGCGTATCCCTACGTGGCCGG	ъ ч .: ~	σ Υ
	27	57 GlyGly		<b>5</b>
	B. 1	5		~
		807 CAATTICGGCCGCTCGCCGAGACGCTGCCCGTGATCGAGCCGCCAI		שׁ עֹ
	N	19 LeuproArgSerValGlyArgProAlaGly		Ŭ
	CCAGCC 806	AGCTGGACGTGCCGGTGGT	·	i.e
	CCGCAT 749 GlyAla 218	06		~ ∺
•	205	CACCOACATICCCCCACACACTACACTACACTACACTACA		× :
	CTACGC 689	0 CACCACCGAAGAGATCATCGAGGTGTGCCG	₹ ¥	بي
	CCGCGC 629         ProArg 198	88	B	2
•	18	70 CATGGCCAGCGGCGCCATCGGCATTTCGAC	\$ 1	بب
	<b>ເກ</b> .	522 CGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGA	B 24	ں ب
		55 AlaLeuAlaGlyGlnProArgProGl	₽	0
	່ໍ່	CCTGTATGGTGGGCCATTCAACGCTGCGCGCGCGCGCGC	Ş	0
	ı ön	36 ValArgArgAlaGlyArgArgSerSerAlaglyGl	₽ 5	0 4
	ArgAla 135	gArgProLeuProProAlaArgProAlaGlnGluArg	6 B	0 5
			!	•

																		•		
Alian	RESULT US-10- Seque GENEE GENEE TITI TITI TITI TITI CUN PRIC PRIC PRIC PRIC PRIC PRIC PRIC PRIC	В	Q	8 8	문	γQ	B 8	g dg	) B	Qγ	B. 5	) B	Qy	DЬ	Qy Db	δ	В	Qy	망	φ.
	PA 41: ERAN ERAN PLITE TIE TIE TIE TIE IOR TI	666 Pro 666	1740 CCT 1742	646 GluValGlyG			1611 GGGCAAGGA     610 GlyGlyArq	1560 CCGCTACAT	70 Ar	1524 GGCGGCGTG	1485 CTGAGCCCG- :::    550 ArgAlaProg		1434 GCAGGCGTT	   510 ValAlaAl	490 AlaGlyTy	1359	470 Provalva	1347	450 ProGluAr	1320 CCTGGTGG
	lication Use Rubenfield NUCLEIC J AERUGING 136.136 NUMBER: US E: 203-04 NUMBER: US 1999-02-18 NUMBER: US 1998-07-27 DS: 33142			CHARCTIGG	'n	AGACCTGTCGC	GGGCAAGGAAGTGATGGGGGGCGCGCCCTGCGCGCGAGCGCAAGGGCCCGGAAAATGACCCT	CCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGT 		GCGGCGTGCCGCTCC	CTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGG 	LeuArgThrSerArgAlaLysAlaLeuProArgArgArgAlaAlaValProHisGlySer	GCAGGCGTTCACCGGCCAGCATGCCGGCCGCGTGCTCGCACG	ValalaalaGlyArgProGlnProPheAr	AlaglyTyrGlyProAspArgProAlaSerArgArgThrAlaglyTyrLeuAlaglyPro TACCGAGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCGC		lValAlaAlaProAlaG		  ProGluArgProAlaProGlyThrGlyAlaCysGlnProAlaMetAlaAlaGlyThrArg	CCTGGTGGTGTTCGACCCGGCCACGGT
	5/10419128  d et al.  ACID AND AMINO ACID DSA FOR DIAGNOSTICS 75/10/419,128212199/252,991 60/074,78860/094,190  DOSB			uLeuLeuH1sGly	 	n i	GCTGCGCGCG2        	CGCTC( ;; lGluArgAlaAl	coArgProAspLe	CCCAACCCTGGA	rgGlnAlaGlyPr	laLeuProArgAr	cceccecerec		roAlaSerArgAr CATTCCGTGTACG		ProAlaGlyArgArgThrGluProGlyLeuArgProAs	-GGCCGATACCGC	  hrGlyAlaCysGl	ACGGT
	ACID SEQUENCES TICS AND THERAP			LeuProAlaArq	  ProGlyProGlu	TCGCGGTCTCGAC	AGCGCAAGGCCC	GCAATACGGCCC         aAlaGlyGlyPro	uValArgAlaTh		AGCCCTTACAAT   oGlyalaargar	gargalaalava	TCGCACG	uHisProAlaAs	gThrAlaGlyTy TCAACGGCGCGC	СА	mGluProGlyLe		lnProAlaMetA]	
	RELATING		,	CCAGATCGC 	luproAlaGlnGly	-PIOGIYAIGAIGPFO	GAAAATGACCC1	-CGCTCGCAATACGGCCCCACCCGATATCGT        galaalaalaGlyGlyProalaGlyArgVal	:: rAlaLeuArgGl:	CGCAAA	-GCGCCAGCCCTTACAATCCGGCGTGAACGG 	lProHisGlySe	CACGGCCGC		TLeuAlaGlyPro	CACCTTCGAACACCC	pPr		laAlaGlyThrAr	
	TO PSEUDOMONAS		:	1739		1721		T 1610 .	589		G 1523 : n 569	r 549	C 1484	9 529 - 140		C 1373	0			1346
	WAS																			

윰	정 함	₽ ₽ .	5 B.1	숙. B. 5	8 8 8	, & <del>2</del>	8	δ β	δ, β	8. B	. <b>Q</b>	B 8	문	φ θ	왕 B.	8 8 A	0 6	DB Pe
277 AlaalaargArgArgArgArgGlyProValArgArgProPheArgCysThrAlaLeuArg 296	lyGlyArgCysProArgProCysArgAlaLeuProGlu CTGGACGCGTATCCCTBACCTCC	37 GlyGlnGlyGlnProArgArgGlnProAlaProAlaGlyCysProArgArgGlnProPro 25	19 LeuProArgSerValGlyArg	CACATGCGCGACGAAC	30 CACACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGC 68 99 H1sAspGluProGlyArgPro	00 ~	72 ProGlnAlaAlaAlaHisArgAlaHisProTyr	GlnProArgProGluGlyArgArgGlnH18ArgAsp	erSeralaGlyGlyArgGlyMetGlyArgIle 1	9ProLeuProProAlaArgProAlaGlnGluArg	A 9 H SA F 9 P P O GLYRISP POALAGINGINS  1   CGCCAACCCGCCCCCCCTGGACCTGCTGGACGAA	GCATCAGCCTGGCGCCGCTGGCGCA 35	87	69 ArgArgArgProGlyAlaGlnArgTyrProAlaGlyLy8ArgArgThrAspArg 86	CCGCCGCGACACCCGGGTCGACGTGTCCCCCTTCCTCCTCCTCCTCCTCCTCCTCCTCCTC	111 GCGGCGCGGACCTGGGGCGTGGCGGGGACCGCTGATCGACGGCAGCAGCACACCCCGGG 11 37 LeuArgProAlaAspArgGlyArgLeuGluH1sArgH1sArgLeuPheGlnArgPro 55 111 GCGGCGCGGCGACCTGGGCGTGCGCGGCGACCGCATCGCGATTGGCGGCGACCGCTGGGGGGGG	57 CTTCCCCTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTC	ced. No.: core: crent Simi rcent Simi st Local S st Local S ery Match:

0y         900         000
Oy 900 CTCCACCANTCGTCAAGCAGGACGCGGCGGCGGCGGCGCGCACCATCATCACCTGCCCCCCCC
900 CTCCACCATTCCTCAMCAGACCACCCTCTCTCTCTCTCTCTCTCTCCCCGACCACCATCATCACCTCTC- 297 ArgClnArgAlaAlaLaeuProArgervallalaClnArgAsiproAlaproLeulry 957

DY 381GAACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGA 428	QY 330 CAGCCTGGCGCCGCTGGCGCACGCCCAACCCGCCCCGCC	288 213			171 158	Db 148 AlaGlyArgGlyValArgProAlaArgGln	129	112	-10-009-	Best Local Similarity: 29.18% Mismatches: 257 Query Match: 13.13% Indels: 270 DB: 6 Gaps: 42	5.75e-08 Length: 433.00 Matches:	ment Scores:	; LENGTH: 937 ; TYPE: PRT ; TYPE: PRT ; TO-266 CO. 100 Decidomonas aeruginosa	PRIOR FILLING DATE: 199-02-18  NUMBER OF SEQ ID NOS: 33142  SEQ ID NO 19446	CURRENT APPLICATION NUMBER: US/10/366,683  CURRENT FILING DATE: 2003-02-13	TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS	APPLICANT: NUMBERIALISM (MARC J. ) APPLICANT: Nolling, Jork APPLICANT: Deloughery, Craig APPLICANT: Bush, David	19446, Application UNIFORMATION:	RESULT 9 US-10-366-683-19446		Qy 1740 CCT 1742	
D Qy	da Qy	B Q		Qу	рb	D 2	₽ 5	Db Qy	Ф	Q B	γQ	Db	2 B	Q D	. Qy	Оy	Db 43	 -	. Оу	Db	Qy	
1140 GCCGCACGACGACGCCCGCATCCGCGCGCGCGGGGGGCACCTTCCCGCGGGGGGCACCT 1193	1080 CGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCT 1139	1029CGACGTGGTGCCCGAGCTGCAGCCGGCGGCGGCGATCTACTTCATGATGGA 1079	GAG Pro		858 GCGCCAGGACGTCTCGCTGGACGCGGATGCCTACGTGGCCGGCTCCACCATGCTCAAGCA 917	798 GGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGC 857	GT :	738 AACCTTCCGCATCGG 779	୍ ପ୍ର:	402 GlyLeuValArgLeuArgLeuGlyAlaGlyValAspArgLeuArgValGlnProAlaVal 421 678 CGGCATCTACGCCACCCACATGCGCGACGAGGCGAGGAGCATCGTAGGCGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG		03/ - CCGGCCGCTGAGCGC - 671	≥	yGly <sub>.</sub>	620 620	582CGCCATCGGCATTTC	343GCGCACCTGGCCGAGGAAGCCATGGCCAGCGG	287 AlagluGinargAlaHisAlaArgGinArgArgGlyAspThrArg 301				253 GlyTyralaGlyGlyArgArgGlyGlyLeuArgAlaArgThrArgAlaArgThrGlnGlv 277

Ş

S 밁

```
RESULT 10
US-10-419-128-19446

Sequence 19446, Application US/10419128

SERRAL INFORMATION: Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQ.
FILE REFERENCE: 107196-136
CURRENT APPLICATION NUMBER: US/10/419/128
CURRENT FILING DATE: 2003-04-21
PRIOR APPLICATION NUMBER: US/09/252,991
PRIOR FILING DATE: 1999-02-18
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR PPLICATION NUMBER: US 60/074,190
PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                          1752 GAAGCT 1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1650 CAAGGCCCGGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                              820 CysGlnGlyGlyAlaValArgLeuArgHisProArgHisProValLeuProHisAlaGlu 839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1569 GGCCCTCCCTCGCTCGCAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1542 CCCAACCCTGGACGCAAACCGCTACAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       860 Aspala 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780 AlaGiyProvalArgLeuGlnGlyArgGlnAspProLeuProLeuProAlaHisArgArg 799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1278 CCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGA------CCT 1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      706 ProAspHisGluAlaAlaTyrArgArgProAlaAlaArgProGlnSerArgArgGlnPro 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          686 AspAlaArgTyrLeuHisArgLeuGlnGluAlaAlaLeuProLeuGlyLeuArgArgAsp 705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            666 AlaGiyValArgGluGlyProValGlyArgLeuLeuArgAlaGlnLeuArgGlnGlyGly 685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  647 AlaGlyArgAlaGlu---MetAlaGlyMetValH18H18ArgGlyArgArgAlaGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1194 ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    627 ProGlnArgProArgArgAspHisArgAlaArgHisHisAspHisAspProAlaGlnArg
                                                                                                                                                                                                                                                                                                                                                                            {\tt AspAlaLeuGlnProArgProAlaGlyGlyProGlyGlyGlyProArgGlySerLeuArg}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgArgProAlaArgLeuValLeuArgArgProArgArgProValAlaLeuAlaHisHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAspAspHisArgAlaGlnAlaArgArgProAlaAlaAlaAspLeuArgAspProAla 779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspArgArgArgProGluHisLeuLeuHisProArgArgAlaAlaLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGGCGTGCCCCCT 1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGA--- 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTGGTGTTCGACCCGGCCACGGTGGCCGATAC----CGCCACCTTCGAACACCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGAAGATGACCGGCCTGACCGCCGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgLeuGlnAlaAlaLeuLeuArgArgValGlnGlyLeuLeuProHisArgHisGlyHis 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --AspProArgProAlaLeuProLeuArgGlyArgLeuAlaAlaVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---GGGGCACTATGCGCGCGA---CCTGGGCCTGTTCCCGCTGGAGACGGCGGT 1241
                                                                                                                                                                                                                                                                                                                                                                                                               -CCTGTCCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------GGCCAGCGGCATCGCGGTCTCGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---AATGACCCTGCAAGACCTGTCGCA-----
                                                                                                                                                                SEQUENCES RELATING TO PSEUDOMONAS AND THERAPEUTICS .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---GCGCTTCGG
                                                                                                                                                                                                                                                                                                                                                                                859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1277
                       밁
                                                                                        밁
                                                                                                                         ş
                                                                                                                                                            밁
                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-009-782-1 (1-1758) x US-10-419-128-19446 (1-937)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-419-128-19446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID
SEQ ID NO 19446
LENGTH: 937
342 LeuLeuGlyArgLeuGlnArgArgProGlnGlyGlnValGlnLeuHisArgAlaGlyGly 361
                                                                    322 LeuArgHisArgSerLeuArgProAlaLeuGluGlyGlnArgArgArgLeuGlyGlyArg
                                                                                                                                      302 GlyProGlyHisLeuProAlaAlaProAspGlnArgAlaGlnArgArgArgLeuGlnLeu 321
                                                                                                                  582 ---CGCCATCGGCATTTC----
                                                                                                                                                                                             543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Pseudomonas
                                                                                                                                                                                                                              287
                                                                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                            273 ArgLeuProGluGluAlaAlaAlaAlaArgArgGlyArgLeu---------
                                                                                                                                                                                                                                                                                                                                    429
                                                                                                                                                                                                                                                                                                                                                  253 GlyTyrAlaGlyGlyArgArgGlyGlyLeuArgAlaArgThrArgAlaArgThrGlnGly 272
                                                                                                                                                                                                                                                                                                                                                                                    381 ------GGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGA 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        330 CAGCCTGGCGCCGCTGGCGCAACGCCAACCCGCCCCCTGGACCTGCT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193 GlnArgGlyAlaValProProArgGlyAspGlyGlyThrValAspArgLeuProArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        171 CGCCGCCGCGCACACCCGGGTCGA-----CGTGTCGGGCCTGGTGGTCGCCCCGGCTT 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173 AspArgProArgHisProHisArgGlnArgValAlaGluArgGlyAlaSerAspSerArg 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  225 CATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAA 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      285 GAT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129 ---AlaHisProGlnHisProHisLeuPheGlyProGlyArgAlaArgArgHisProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112 ProLeuProGlnArgArgThrAspAlaHisArgPro------GlyThrGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66 GCTGCTCGCGGGGGCACCCTCAT-------CGACGGCAGCAACACCCCGGG 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 CCACTIGATCGCGGAAGGAGAGTTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCT
                                                                                                                                                                           -----GGCCAT-----GCGGGACCTGGCCGAGGAAGCCATGGCCAGCGG------
                                                                                                                                                                                                          AlaGluGlnArgAlaHisAla------ArgGlnArgArgGlyAspThrArg 301
                                                                                                                                                                                                                                           GCTGCGCGCCGCGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGAAATCGC--- 542
                                                                                                                                                                                                                                                                                                                 CGCGTTGCGGGCCACGCCGGCGGCCGTCAACGC----CGCCTGTATGGTGGGCCATTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                     IleProGlyThrGlyAlaThrArgArgProAspArgArgProArgProAlaLeuLeuGly 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyProArgGlyGlyGlnGlySerGlyAspHisArgArgThrValAlaArgLeuProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----CTCGCAGGGCGTCACCACGGTGGTCAC-------GGGCAATTGCGGCAT 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGA 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GlyArgGlyValArgProAlaArgGln----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----ProGlyHisLeuAlaArgProGlyProGlyGlnGlnArgGlyArg 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.75e-08
433.00
34.29%
29.18%
13.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                       ----GACCGGCGCCTTCTACCCGCCCGC
                                    937
234
41
257
257
270
                                      620
                                                                     341
                                                                                                                                                                         581
                                                                                                                                                                                                                                                                                286
                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             232
                                                                                                                                                                                                                                                                                                                                                                                                                                                          380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              147
```

밁

	99	434	Υ
	ArgTyrLeuHisArgLeuGlnGluAlaAlaLeuProLeuGlyLeuArgArgAsp 705	ab As	
	AGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGC	77 cc	بر
	aGlyValArgGluGlyProValGlyArgLeuLeuArgAlaGlnLeuArgGlnGlyGly 685	66 A1	
	AACACCCTAC 1	23 GG	Ý 1
	9AlaGlyPro 66	647 Alac	ŏ
	CAGCTGCAGGCCGGGTACTTCGCCGA	278 CCT	)Y 1
	ArgHisHisAspHisAs	627 Pro	
	ATGACCGGCCTGACCGCC	242 ATO	)y 1
		607 Ar	
	GIYLEUFIOAIGFTOALAATGGlu 6	194	γ 1
	GCACCTTCCCGCGGGTGCT 11	III 590 Alaas	
	on y we want a will at HISGIYALAAla Leu Argarg Pro	40	
	CCAACGIGCAGCGCATCCIGGCGTTCGGCCCGACCATGATCGGCTCCGACGGC	1000 CGAAC	당 · \$
	yeryargargeryGryargGlyaspa		
	CCGGCGCCATCTACTTCATGATG	250 6100	문 <b>5</b>
	roAr	200	
	AGCGGGCGCGACCTGGATGAAGTCGCGGCCGAAATCCAAGTA 1028		? 5
	GLeuAlaAlaGlyArgGlyAlaLeuArgAlaProGlyArgAlaLeuProLeuLeu 538	1 9	8 8
	GGACCGCGTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACT 977	18	, 5
•	ū		, B
	TCAAGCA 9	858 ·GCG	Qy
	roArgAlaLeuLeuGlnArgAlaAlaGlyThrAlaGluAlaAspProArgArgPro 498	479 AspP	₽
	CGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGC 85	98 66	Ϋ́
	larleProAlaAspHisArgArgAlaGlyLeuSerAlaGlnGlyVal 4	459 GL	B
	CTCGCACCACAAGCTCAT 70	780	Qy
	Gly/lill	441 G1	용
		738 AA	Qγ
		422 G1	Ъ
	COACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCGCTGGAGGA	. ດ	Ş
	GlyAlaGlyValAspArgLeuArgValGlnProAlaVal 4	402 GI	B
		672	Q
	roAlaArgGluAspLeuProArgArg 4	382 H1	Ъ
	5.7	657	δλ
	xo ü	362 Ala	D
	CGCCCGCGCGCCACCACGAAGAGATCATCGAGGTGTG 656	621	Ωy

			•																
				•										•					
Ϋ́	, B 84	us-10	Alignment Pred. No. Score: Percent S: Best Loca. Query Mature	RESULT US-10- VS-10- VS-10- VS-10- VS-10- RESULT US-10- RESULT US- RESULT US-10- RESULT US-10- RESULT US-10- RESULT US-10- RESULT US- RESULT U	Qy	<b>.</b> D	Qy .	Дb	Qy	B 5	}	Qy	Дb	Qγ	Ъ	Qγ	문	Q	рb
. 98	מ – מ	-009-782-1	No.: No.: t Si ocal	1: 36: 36: 236: 236: 236: 236: 236: 236:	1752	840	1710	820	1686	008	780	1590	760	1569	. 742	1542	726	1482	706
CATCGA	CATGTO		Scores: milarit Simila	50 ASPAIR 861 11 11 12 36-683-30843, Appl 16 ASPAIR RUBERTION: 16 CANT: Rubenfie 16 CANT: Nolling 16 CANT: Delough 16 CANT: Delough 17 CANT: Delough 18 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 19 OF INVENTION: 10 OF INVENTION: 10 OF INVENTION: 10 OF INVENTION: 11 OF SEQ ID NO. 10 10843 17 OF SEQ ID NO. 10 10843 17 OF SEQ ID NO. 10	GAAGCT	AspAla		CysGln		ergarg	AlaGi	TACGG	GlyAsı	GCCCC		CCCAA	Pro	CGCCT	ProAs
CGGCAG	CCATGTCCCAATCCGATTCCCAGC- 	(1-1758) x	y: rity:	860 ASPAÍA 861  SULT 11  10-366-683-30843  APPLICANT: RUBENTÍCIA, MARC J APPLICANT: RUBENTÍCIA, JORK APPLICANT: NOILING, JORK APPLICANT: Deloughery, Craig APPLICANT: Bush, David TITLE OF INVENTION: NUCLEIC A TITLE OF INVENTION: NUCLEIC A TITLE OF INVENTION: MUCHEIC A TITLE OF INTENTION: MUCHEIC A TITLE OF INTENTION: MUCHEIC A TILLE OF INTENTION: AERUGINO CURRENT FILING DATE: 2003-02 CURRENT FILING DATE: 2003-02 PRIOR APPLICATION NUMBER: 09/ PRIOR FILING DATE: 1999-02-18 NUMBER OF SEQ ID NOS: 33142 EQ ID NO 30843 LENGTH: 653 TYPE: PRT ORGANISM: PSeudomonas aerugir 10-366-683-30843	1757	LeuGln		GlyGly	-	caaegeeeegaa :::     ArgargProAla	Proval	CCCACC	AspH1s	eccccrccrcccrcccrccAA-	-Asparç	CCTGG	  -AspPro	AGCCC	DH18G1
PAACACO	CGATTCO       aTrpPi		6.37e-( 432.50 33.51% 27.52% 13.11%	A Application in Application in Application in Application in Illing, Jork loughery, Crash, David Crion: AERUGII TON: AERUGII PATH03-04 (VION NUMBER: 2003-(CON NUMBER: 05) TIE: 1999-02-1 D NOS: 33142 D NOS: 33142		ProArgi		Alaval.		ArgLeu	ArgLeu	CGATAT	ArgAla	CGCTCG	Argargero	CGCAA	ArgPro	30000	III Alaala
) ) ) )	CAGC	-10-366	8 8 0	O ASPAÍA 861  1 1 2 30843; Application US/103666; INFORMATION: LINFORMATION: LINFORMATION: LANT: Rubenfield, Marc J. ZANT: Nolling, Jork ZANT: Deloughery, Craig ZANT: Bush, David OF INVENTION: NUCLEIC ACID AND OF INVENTION: AUGURIC ACID AND OF INVENTION: NUCLEIC ACID AND TAPPLICATION NUMBER: US/10/36 TEILING DATE: 2003-02-13 APPLICATION NUMBER: 09/252,991 TEILING DATE: 1999-02-18 (OF SEQ ID NOS: 33142 NO 30843 PRT ISM: Pseudomonas aeruginosa -683-30843	,	ProAlac	CTGTC	ArgLeu		ValLeu	GinGly	CGTGGG	GlnAla	CAA	ProGlu	CCCAACCCTGGACGCAAACCGCTACAT-	 	100000m	TVTATO
TCATCGACGGCAGCAACACCCCGGGGGGGGGGGGGGGGG	CATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCC 	US-10-366-683-30843	Lengt Match Conse Misma Indel Gaps:	US/10366683 J. J. ACID AND A ACID FOR DI US/10/366, 02-13 9/252, 991 18	•	AspAlaLeuGlnProArgProAlaGlyGlyProGlyGlyProArgGlySerLeuArg	CTGTCCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA	CysGlnGlyGlyAlaValArgLeuArgHisProArgHisProValLeuProHisAlaGlu		CANGGCCCGGAAATGACCCTGCAAGACCTGTCGCA	AlaGiyProValArgLeuGlnGlyArgGlnAspProLeuProLeuProAlaHisArgArg	TACGGCCCCACCCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGC	  GlyAspAspHisArgAlaGlnAlaArgArgProAlaAlaAlaAspLeuArgAspProAla		:::         AspArgArgProGluHisLeuLeuHisProArgArgAlaAlaLeuValGly	CAT	ProAspProArgProAlaLeuProLeuArgGlyArgLeuAlaAlaVal		ProAspHisGluAlaAlaTyrArgArgProAlaAlaArgProGlaScratteri
GCCGAC	CCTTCGACCTGCTGCTCGCGGGGGGCACCC     ::      :::     ProProArgArgAlaAlaArgAlaSerPro		Length: Matches: Conservative: Mismatches: Indels: Gaps:	583  AMINO ACID DIAGNOSTICS 56,683		roglyc	GAGCTO	ProArgi	-GGCCAGCGGCATCGCGGTCTCGAC-	GCCTGCA     gProArg/	AspPro	AGTGAT	ProAla		LeuHis		HIGGLY ArgGly	ATANTA	
CTGGGC	CTGCTG gArgAl	(1-663)	ri			l   Hyglyf	GGCCAG	  1sPro\	ATCGC	AGACCTGTCG           ArgProValA	LeuPro	GGCGC	Alaala		ProArg		ArgLeu	Argero	71207
GTGCGC	CTCGCG :::   aAlaAr		663 202 44 246 246	QUENCE D THER		 POArgo	ATCGCC	  alLeur	GICIC	STCGCA-	LeuPro	зсесст	AspLeu		ArgAla		Alaala	Ginser	)  
GCGAC	GGCGGC     :: gAlase			SEQUENCES RELATING AND THERAPEUTICS		lySerL	CTGAGC	roH1s#	AC	euAlaF	AlaHis	SCGCGC	ArgAspi		AlaLeu		erecce     Val	ArgArg	<u> </u>
				· ្ត	•	euArg	TACGA	LaGlu		119816	rgArg	CGAGC	ProAl		ValG1		cccc	GinPr	!
145	85			. TO PSI						. 1685 . 819	y 799	3 1649	<b>~</b>	_	•	- 1568	T 1541 - 741		
			·	PSEUDOMONAS				:		<b>.</b>		•	•		•		_		
				SANC															

; 8	3 5	용	γo	B 8	5 8	ΥQ	문	5 B	δ δ	;	밁	γo	문	δ 6	: } }			-	_	_		_	•	•						
٠.			_			•	•		` `	~	•	*	σ	٠ ۲	÷ ₹	В	. Q	B	νQ	B 1	o p	Ϋ́	용	Ş	8	VQ V	₽ \$	. B	γQ	₽
so FroTrpSerAlava		16 ThrProTrpArgAspThrSerProCysValProAsnCysValAsn	CATGGCGC		91 AlaMetProProSerThr	CGGCCGCGAGCTGGAC		rg r	25	65	 ysAlaCysAlaLysAlaValGlySerAlaArgSerProAlaAsnAlaTr		91 CysserProValAlaThrAlaProThrAlaThrCvssgrProProCo	626	TGGCCAGCGGCGCATCGGCATTTCGACCGGCGCGCCTTCTACC	-	PrioAlaProPro 15	SerAlaTrpTrpTrpLeuAlaProAlaArgregregregregregregregregregregregregre	HisTrpProAla 1		::: ProSerProAla	GACCTGCTGGACG		6 GCATCAGCCTGGCGCSEFAIGAIGProGlyTrpSerProAlav	64	6 GTCGCGACATCACCCCCAACCTSCTATCACCACCACCACCACCACCACCACCACCACCACCAC	GCACACCCACGACGACAACTACCTGCTCAGGC 2	40 ArgValProAlaCys/	GGACGCCGCGCACACACCGCGTCGACACGCCGCACACGCGCGCG	ב ב ב

Qy   905 CCNTGCTCANGCAGGAGCGGGTGC									•					•										_										
	US-10 Seq GEN	Db	Qy	В	Qy	В	γQ	₽ .	o p	Qy	문	Qy	D	Qy	탕	Qγ	рь	Qy	망	Qy	Д	Qy	Дb	Qy	D.		ДD	Qy	DD DD	Qy	贯	ν	Db.	٠.
	128-30843 30843, Application US/104191 NFORMATION:	ArgArgArgAlaAlaAlaAlaProGlyLysArgArgSer	1699 GCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCG 1738	631 -AlaproGlyAlaAlaThrGlyAlaProThrThrGlyAlaAlaArgPro 646	1639 CGCGCCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTTGTCGTAGGCCCAAGGCCCATT	620 9CysSerProArgArdProThrProArgSer	1588 AATACGGCCCCACCCATTTCCCCCCCCCCCCCCCC		582 eAlaAlaProAlaGlyProThrPoAlaArgProProAlaAlaAlaThrGlyAr	1468 CTCGCACGCACGGCCGCGTGAGCCCCGGCGCGCGTTACAATCCGGCGTGAACGGGGCG	562 aArgProArgAlaProArgArgProGlyArgSerProAlaThrAlaProAlaAlaPh	1414 GGCGCGCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCCATCCCGCCGCCATCCCCCCCCCC		1354 ACCGCCACCTTCGAACACCCTACCGAGCGCGCCCCCCCCC	524 OALAHISATGPTOSerAlaSerAlaThrGlyTrpProGlyProAlaTenalaCometa	1294 CAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGGTGTTCGATCCCCCCACCTGGTGGTGGTGGTGGTTGGATCCCCCCACCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTG	504 YArgArgThrProAlaAlaArgArgArgSerAlaArgThrAlaBrcarrbroalari	1268CGCGCTTTCGCCCCCCCCCCCCCCCCCCCCCCCC	484 GALAATGThrGlyIleArgArgThrAlaAlaAlaAlaAlaCvsTvrProProArgArgThrAlaAlaAlaAlaCvsTvrProProArgArgArgArgArgArgArgArgArgArgArgArgArgA	1259	464 yAlaGlyProAlaSerThrGlyArgSerArgArgTrDAlaAlaAlaBroalaan	1215GGGCCTGTTCCCGCTGGAGACGCCGTATGGAAGACATGAAGATGAAGATGA	444 eAlaGlySerAlaProGlySerGlyThrAlaProArgCvsHisDroValarcr	1172 GGGGCACCTTCCCGGGGGGGGGGGGGGGGACACTATGCGGGGGACACTATGCGGGACACTATGCGGGACACTATGCGGGACACTATGCGGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGGACACTATGCGACACTATGCGACACTATGCGACACTATGCGACACTATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATGCACTATATATGCACTATATATA	425 aAlaAspHisProAlaAlaTrpValSerAlaAlaArgArgThr	1112 GCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGACGACGACGACGACGACGACGAC	.405 9AlaThrProAlaSerAspAlaArgArgArgAspSaralascratch	1058 GCGCCATCTACTTCATGATGACGAACCCCAACCCCAACCCCAACCCCAACCCCAACCCCAACCCC	386 uArgArgArgValArgArgSerilangs	1013 GCGGCAAATCCAAGTACGACGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTG	371 GlyGlyTyralaAlaAlaProArg-AsnSerrya	953 CCTGGTGCAAGCCCTTCCCCGAACTGAAGGGGGGGGGGG	353 ProAlaGlyProArgProSerCysThralavalalalalalalalalalalalalalalalalala	905 CCATGCTCAAGCAGGACCGCGTGCTCCTCCTCCCCCCCCCC

	572 TGGCCAGGCGCGTTTCGCGATTTCGCGGTTTCGGGTGATGATGATGATGATGATGATGATGGTUP	CCACCGACGAGGAAATCGCGGCCA	1 34	464 CCTGTATGGTGGGCCATTCAACGCTGCGCGC	115	- ≫					Db 64SerArgArgProGlyTrpSerProAlaValPro 74	CGCCCAAGATCTCGCAGGGCGTCACCAACGGTCGTCACCCCAAGATCTCCCCCAAGATCTCGCAGGGCGTCACCAACGGTCGTCACCGTCGTCGTCACCCCCAACGGTCGTCACCCCCAACGGTCGTCACCCCCAACGGTCGTCACCCCCAACGGTCGTCACCCCCAACGGTCGTCGTCGTCGTCGTCGTCGTCGTCGTCGTCGTCGT	55 TrpProGlyArgProMetSerSerThr	Db 40 ArgValProAlaCysArgArgValProIleArgCysAlaAsnAla 54	CCGCCATCGGCGATCTGTCGGACGCCGCCGCGCATATACCCGCGTTCGTCTTCTTTTTTTT	n — 5	-	Oy 32 CCATGTCCCAATCCGAGTCCCAGCCCTTCGACCTGCTGCTGCTGGGGGGGGCACCC 85	US-10-009-782-1 (1-1758) x US-10-419-128-30843 (1-663)	. vaps:	Alignment Scores:  Alignment Scores:  6.37e-08  Score:  432.50  Percent Similarity:  432.50  Best Local Similarity:  77.528  Conservative:  Mismatches:  Alignment Scores:  6  Alignment Scores:  Alignment	INUMER OF SEQ DIE: 1998-07-27  INUMER OF SEQ ID NOS: 33142  SEQ ID NO 30843  LENGTH: 663  TYPE: PRT  ORGANISM: Pseudomonas aeruginosa  US-10-419-128-30843	APPLICATION NUMBER: US 60/094, FILING DATE: 1998-02-18	)/074,	APPL	ITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS ILE REFERENCE: 107196.136	
525	170	571	150	N	ω	463	114	406	9 4	346	325 74	, · 6	J O	-	2	3 6	1	N 85	•								
										•				·					:		· .					PSEUDOMONAS	

1294 CAGCTGCAGGCCGGGTACTTCGCCGAACGTGGTGGTGTGTGT	γo
OA VARGARGARDADADADADADADADADADADADADADADADA	3 . 2
	문
-TGACCGCCG 12	Qy
464 yAlaGlyProAlaSerThrGlyArgSerArgArgArgTrpAlaAlaAlaProAlaArgAr 484	문 5
444 eAlaGlySerAlaProGlySer	) b
72 GGG	y v
ш.,	DЬ
GCCCGACCATGATCGGCTCCG	Qy
CATCCTGGCGTTCG 1	₽ .Q
uArgArgArgValArgArgSerAlaArgArgAlaTrpArgProTrpProAlaGlyAr	2 B
AGTACGACGTGGTGCCCGAGCTGCAGCCGGCCG 1	Ωy
371 GlyGlyTyrAlaAlaAlaProArg-AsnSerCysSerAlaGlyArgLe 386	Db
TCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTTCGCGGCCCGAACT	Ωγ
353 ProhlaglyProhrgproSerCysThrhlavalhlahlaTrpAlaprohlahra 370	д Д
05 CCATGCTCAAGCACGACGACGGTCC	Q (
GCCAGGACGTCTCGCTGGACGCGTATCC	B 2
316 ThrProTrpArgAspThrSerProCysValProAsnCysValAsnTrpArgArgArgIle 335	}
CCGCCATGGCGC	2
297SerAlaThrArgLeuAlaAlaCysGlyH1sAspGlyAspAlaGlyArgAlaSerGln 315	рb
809 ATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGG 847	<b>Υ</b> Ω
	. 8
:ACCACAAGGTCATGGGCCAGCCCA	· Qy
	DЬ
ACGAAGGCGAGCACATCGTGGCCGCGCTGGAAGGAAACCTTTCCGCA-7	Ϋ́O
251 ThraiaargargSerProSerThrasnGlyargProAlaalaCysProThrThrPro 270	Db
	γQ
, c	뮰
The state of the s	VQ
aLysAlaValGlySerAlaArgSerProAlaAsmalamrn >>	당.
AGGTGTGCC	Q Q
191 CysSerProValAlaThrAlaProThrAlaThrCvsSerProTroSeralaBarcseral	Db.
.626	δ.

OY 153 CATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGT 212			-10-009	ty Legis	900-083-21920 ent Scores: 6.64e-08 Tenath.	TYPE: PORGANIS	FILING DATE: 2003-0 PLICATION NUMBER: 09 LING DATE: 1999-02-1 F SEQ ID NOS: 33142 21920	TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS FILE REFERENCE: PATH03-04 CURRENT APPLICATION NUMBER: US/10/366,683	APPLICANT: Rubeniteld, Marc J. APPLICANT: Nolling, Jork APPLICANT: Deloughery, Craig APPLICANT: Bush, David	റശം		1639 631	QY 1588 AATACGGCCCCACCGATATCGTGGGCAAGGAAAGTGATGGGCGCGCGC		. 1468 582			Db 524 oAlaH1sArgProSerAlaSerAlaThrGlyTrpProGlyProAlaLeuAlaCy 542
D Qy	Ор	Д	. Db	Db Qy	. Qy	. Db	δ β. δ	B 5	2 B Q	, p, q,	y da	Qy Db	Qy Ob	Qy da	Qy	Оу	Db Oy	- da
1008	969 CCCCGAACTGAGCGGGCGCGCCTGGATGAAGTCGCGGC	930 GCT	879 CGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCT 929	*-0	792 GGTCATGGCCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCT 839	244 ArgargalaHisargLeuGlnProGlyargargalaGlyGlnProLeuargProVal 263	702 CGACGAAGGCGA		204	184	465 173	154	372 GGACCTGCTGGACGA	7 345 GGC	Y 300 CACCACGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCCT 344	246 79	y 213 CGCGCCCGGCTTCATCGACTCGCACACCCACÁGA 245 ::                    59 GlnProArgGlnGlnArgLeuArgH1sProArgGlnProGlyArgH1sGluProAlaPro 78	b 39 GlnArgArgGlnProArgArgGlnAlaGlyGlnProGlyAlaAlaGlyAspHisHisArg 58

```
Sequence 21920, Application US/10419128
GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SECTIFIE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND FILE REFERENCE: 107106.136
CURRENT APPLICATION NUMBER: US/10/419,128
CURRENT FILING DATE: 2003-04-21
PRIOR APPLICATION NUMBER: US/09/252,991
PRIOR FILING DATE: 1999-02-18
                                                                                                                                                                      RESULT 14
US-10-419-128-21920
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1566
                                                                                                                                                                                                                                                                                                                                                                                             1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1392 CATCCATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAGGCGTT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1287
                                                                                                                                                                                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1095
                                                                                                                                                                                                                                                                                                                                                                                                                             570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1041 CGAGCTGCA-----GCCGGCCGGCGCGCATCTACTTCATGATGGACGAACCCGACGTGCA 1094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             370
                                                                                                                                                                                                               ThrAlaGlyArgArgArgLeuArgH1sArgArgArgH1sProGluGlnPro
                                                                                                                                                                                                                                                       GTCCAAGGC-----
                                                                                                                                                                                                                                                                            HisLeuAspHisHisProAlaArgGlnAspArgGlyHisArgGlnGlnArgHisGlyAla
                                                                                                                                                                                                                                                                                                             ----GAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCT
                                                                                                                                                                                                                                                                                                                                            AlaAsp---ArgLeuHisArgArgGlnArgGlyArgLeuGlnArgGlnAlaGlnArg
                                                                                                                                                                                                                                                                                                                                                                             AGTGATGGGCGCGCGCCTGCGCGCGAGCGCAAGGCCCG----
                                                                                                                                                                                                                                                                                                                                                                                                            -----ProSerArgArgAlaGlyLysGlnValGlyProVal---HisArgGluAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                             CATGGCCCCTCCCTCCGCTCG-----CATACGGCCCCACCCGATATCGTGGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgGlyAspArgGluArgGlnGlyLeuGlnProAlaCysGlnProAspArgGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCTCCCAACCCTGGACGCAAACCGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlnAlaGlyTyrArgProArgArgCysArgGlnProCysArgGlnProAlaGlnProPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlnProAlaIleGluArgAlaArgProAlaGlnArgAlaArgValAlaValGlnTrpArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \tt ArgHisAspProAlaArgArgArgHisHisGlnProLeuArgGlyCysValGlnProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---CACCGGCCAGCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arg-----GlyArgArgarg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \tt ArgArgGlnProAlaGlyGlnProTrpAlaAspHlsArgArgArgArgProArgGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCGGCAGCTGCAGGCCGGGTA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgGlnProArgProArgGlnArgArgGlnProArgArgArgArgGlnCysHisAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCGCTTCGGCCT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnArgProArgHisGlnPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGC 1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgArgGlnLeuAlaProArgProGluArgArgLeuPro------Trp 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGACGAGCGCCCCCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGC 1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGlyAlaValLeuHisTrpProArgArgArgLeuGluGlnArgArgProAlaGlyGln 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTC-----CGACGGCCTGCCGCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerArgThrProGluProGlyHisArgHisLeuProProAspGlyArgGlyGlnAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----CGAGCTGGGCCAGATCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -------ArgArgLeuArgProGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----CTTCGCCGACCTGGTGGTGTT 1331
                                                                            SEQUENCES RELATING TO PSEUDOMONAS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               642
                                                                                                                                                                                                                                                1742
                                                                                                                                                                                                                                                                                                                                                                                                                                                1619
                                                                                                                                                                                                                                                                                                                                                                               1658
                                                                                                                                                                                                                                                                                                                                                                                                              586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              457
          밁
                                       Š
                                                                          닭
                                                                                                    5
                                                                                                                                          멹
                                                                                                                                                                       Š
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                          멼
                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-009-782-1 (1-1758) x US-10-419-128-21920 (1-822)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Pseudomonas
US-10-419-128-21920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: US (
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 21920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT
                                                                          204
                                                                                                                                          184
                                                                                                                                                                           525
                                                                                                                                                                                                        173
                                                                                                                                                                                                                                         465
                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                        405
                                                                                                                                                                                                                                                                                                                                         134
                                                                                                                                                                                                                                                                                                                                                             114 GlyProGlyArgGlnProAlaAlaTyrArgTrpArgAlaGlyGlnProGlyArgProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300 CACCACGGTGGTCACGGGCATTGCGGCATCAGCCTGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246 --- CGACAACTACCTGCTCAG---GCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                           345 GGC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153 CATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGT 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            105 CCCGGGGCGCGCGGA-----CCTGGGCGTGCGCGGCGACCG-----CATCGCCGC 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              45_CGATTCCCAGCCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACGGCAGCAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 ArgArgProValAspGlnProGlyProAlaArgArgHisProArgArgArg------
                 GATCATCGAGGTGTGCCGGCGGTGAGCGGCGCATGTGCGCATCTACGCCACCACATGCG
                                                                                 CGCCATCGGCATTTCGACCGGCGCCTTCTACCCGGCCGCCGCCGCCGCCACCACCGAAGA
                                                                                                                                                             CACCGACGAGGAAATCGCGGCCAT----GCGGGACCTGGCCGAGGAAGCCATGGCCAGCGG
                                                                                                                              SerArgArgAlaArgArgAlaGlnProAlaGlyProSerLeuGlyAlaGlyArgArgGln
                                                                                                                                                                                                                           CTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGC
                                                                                                                                                                                                                                                            ArgAlaGlnGlnArgGlnGlyLeuAlaAspAlaGlyHisArgAlaValArgGlnGln---
                                                                                                                                                                                                                                                                                             CGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGTCAACGCCGC
                                                                                                                                                                                                                                                                                                                            GlyGlnProGlyArgGlnProArgProAlaGluArgGlnProArgGlnArgArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgProArgGlyAlaGlyArg-----GlnProGlyGlnProProGlyHisAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyArgArgArgProAlaGlnProAlaGlyArgProAspLeuGln-----ProGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnProArgGlnGlnArgLeuArgH1sProArgGlnProGlyArgH1sGluProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnArgArgGlnProArgArgGlnAlaGlyGlnProGlyAlaAlaGlyAspHisHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProGlyGlnArgArgArgGlyAlaProGlyGlnArgArgArgProAlaAlaAlaGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCCCGGCTTCATCGACTCGCACACCCCACGA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.64e-08
431.50
35.84%
31.10%
13.08%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aeruginosa
                                                                                                                                                                                              -----ArgArgArgHisProGlyAlaValAlaGlyAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/094,190
---GlyTrpArgProLeuArgGlnArgProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                               -----GCACGCCAACCCGCCCGCCCCT 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                822
223
34
233
233
227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----GCCGCT 344
                               701
                                                                                                641
                                                                                                                                                                                                183
                                                                213
                                                                                                                                                               581
                                                                                                                                                                                                                                                                172
                                                                                                                                                                                                                                                                                               464
                                                                                                                              203
                                                                                                                                                                                                                               524
                                                                                                                                                                                                                                                                                                                                                               404
                                                                                                                                                                                                                                                                                                                                153
                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
```

밁 S В Ş 밁 Š 밁 Š 밁 S 뭥 S 윰 Ş 8 Ş 밁 õ 밁 S ₽ Ş 밁 Š 밁 S ġ Ş

	ACAATCCGGCGTGAACGGGGGGGGGGGGGGCCCCCCCCCC	)y 1506
	GlnAlaGlyTy	ъ 532
	8	)y 145
•	Arg	
ė		_
	ArgArgGluSerGluGlnLeuArgHisProGlyArgArgArg	b 478
		λy 1332
	ArgArgGlnProAlaGlyGlnProTrpAlaAspHisArgArgArgArgProArgGlyGln	ob 458
	GCGCGGCAGCTGCAGGCCGGTACTTCGCCGACCTGGTGGTGTT	)y 1287
	ArgGlnProArgProArgGlnArgArgGlnProArgArgArgArgGlnCysHisAlaArg 457	Db 438
	CGCGCGCTTCGGCCTGGCCGG	DY 1266
	GlnArgProArgH1sGlnProArgArgLeuArgProGluArg 437	Db 424
	GCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGC	Фу 1206
	ArgArgGlnLeuAlaProArgProGluArgArgLeuProTrp	Db 410
	CGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGC	Oy 1146
	390 GlyGlyAlaValLeuHisTrpProArgArgLeuGluGlnArgArgProAlaGlyGln 409	Db 3:
	GCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCA	Oy 1095
	370 SerArgThrProGluProGlyH18ArgH18LeuProProAspGlyArgGlyGlnAlaAla 389	Э.
	CGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGACGACGAACCCGACGTGCA 10	QY 1041
		Db 3
	recc 1	оу 10
	331ArgGlnTrpHisLeuArgProGlyPheArgAlaGlyAspProArgArgArgArgThr 349	Db 3
	-	Оу 9
		Db 3
	GTGCAAGCCCTT	Qy 9
	296 ArgTrpArgProGluGlnArgLeuArgArgAlaGlyLysArgGlnProGlyProArgPro 315	Db 2
	، م	Оу в
	:::	
	GATCGAGGCCGCCATGGCGCCCAGGACGT	Оу в
	264 GlyLysArgLysArgAlaAlaProAlaArgArg	
		Qy 7
	244 ArgArgArgAlaHisArgLeuGlnProGlyArgArgAlaGlyGlnProLeuArgProVal 263	
		, VO
	CACATCGTGGCCGCTGGA  :::       GlnProArgArgProAlaPheProGlnProGlvArgGlvGlvGlvGrGCCGCGTGGA	
•		0 <b>v</b>

. 0		ArgProGlyGlyGlyArgArgProAlaAlaGlyArgTrpGlnGlyGlyValCys 1
٠.	115	
~	423	CCTGGACGCGTTGCGGGCCACGCCGGCCGGCCGTCAACGCCGCCTGTATGGTGGG 47
U	126	ProGlyAsnArgAlaGlnGlyGlyHisGlyGlyAspArgArgValArgArgProGlyAla 14
	477	CCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCG
·	146	GlyAlaArg
• :	519 163	ProProAlaProHisArgArgPheArgArgAlaGlaGlaGlaGlaGlaGlaGlaGlaGlaGlaGlaGlaGl
•	561	56
•	183	AlaAspPheLeuGly 20
•	570	CATGGCCAGCGGCGCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCCC
	, 0	AsnAlaGlnArgArgArgHisAspArgLeuLeuLeuAspAlaG
•	222	SerAlaGluAlaGlyGlyArgGlyProArgGlyPheLeuGlnProHisArgHisArgHis 241
•	690	CACCCACATGCGCGA7
•	732	GGAGGAAACCTTCCGCATCGGCCGCGAGCTGG
-	262	-ArgAlaSerGlyGluAspAla 2
-	786	CATGGGCCAGCCCAATTTCGGCCGCTC
_	277	roAlaA
	834	TGATCGAGGCCGCCATGGCGCCAGGACGT86
	870	CGTATCCCTACGTGGCCGCCTCCATCCATCCTCATCCTCATCCTCCATCCTCCATCCTCC
-	317	  heAlaGlyProLeuArgLe
	921	CO
	337	GlnArgLeuLeuProArgGlnArgHisHisGlnArgProProLeuGlnAspGlnHisArg 356
	95 <b>4</b> 357	CTGGTGCAAGCCCTTCCCCGAACTGAGGGGGGGGGGCGACCTGGATGAAGTCGCGGGCCGAGCG 1013
	1014 374	-GCTGCAGCCGG     rAlaGlyGlyAl
	Ü	CTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGAC 11
	394	laGlnLeuLeuArgGlnGluArgAlaGlnArgHispro-
	410	CATGATGGCTCCGACGGCCTGCCGCA
	0	GGCACCTTCCCGCGGGTGCTGGGGGGGCACTATGCGCGCGACCTGGGCCTGTTCC
	429	lArgProProArgGlvAsnProCvsLenclnCvsArgC

Search completed: May 11, 2003, 12:28:05 Job time: 108 secs

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM nucleic - protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LIST-45 -DOCALIGN-200 -THR_SCORE-pct -THR_MAX-100 -THR_MIN-0
MODE-LOCAL -OUTEMT-pto -NORM-ext -HEAPSIZE-500 -MINLEN-0 -MAX
USER-US1009782 (GCGN_1 1 401 @tnnat_070503_122518_233205 -NC
NO_XLPXY -NO_MMAP -LARGEQUERY -NEG_SCORES-0 -WAIT -LONGLOG -D
WARN_TIMEOUT-30 -THREADS-1 -XGAPOP-10 -XGAPEXT-0.5 -FGAPOP-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q=/cgn2_1/USPTO_spool/US10009782/runat_07052003_122518_23205/app_query.fasta_1.1927
DB=Pending_Patents_AA_Main -QFMT=fastan -SUFFIX=rapm -MINMATCH=0.1 -LOOPCL=0
LOOPEXT=0 -UNITS=bits -START=1 -EUD=-1 -MINMATCH=0.1 -TRANS=human40.cd1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -YGAPEXT=0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    n2p model -DEV-xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              May 11, 2003, 12:11:00 ; Search time 232 Seconds (without alignments) 9771.041 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4569144 seqs, 644733110 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pending_Patents_AA_Main:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-009-782-1
3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xgapop 10.0 ,
Ygapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /cgn2_6/ptodata/1/paa/PCTUS_COMB.pep:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /ptodata/1/paa/US06
/ptodata/1/paa/US096_COMB.pep:
/ptodata/1/paa/US097_COMB.pep:
/ptodata/1/paa/US098_COMB.pep:
                                                                                                                      ptodata/1/paa/US093_COMB.pep:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.0
7.0
                                                                                                                                                                                                                                                                                                                COMB. pep:
                                                                                                                                                                                                                  _COMB.pep:
                                                                                                                                                                                                                                      COMB.pep:
                                                                                                                                                                                         COMB.pep:
                                                                                                                                                                                                                                                               COMB.pep:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -MAXLEN-2000000000
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

•		•		
RESULT 1 US-10-009- Sequence GENERAL APPLICA APPLICA APPLICA APPLICA APPLICA APPLICA APPLICA APPLICA CURRENT CURRENT CURRENT PRIOR A PRIOR F		C C C C C C C C C C C C C C C C C C C	H H H H H H H	Result
IN IN IN IN IN IN IN IN IN IN IN IN IN I	•	4 408.5 4 407.5 4 407.5 3 98.5 3 98.5 3 99.5 3 9	2511 1115.2 455 455 434 431.5 431.5 424.5 424.5 424.5 423.5 421.5 423.5	Score
Ticati Tion: EUCHI, EUCHI, IDE, Y IDE, Y RIGUCH RIGUCH OBE, K TION NU DATE: DATE:			75. 113. 113. 113. 113. 113. 113. 113.	Query Match I
ition US/10009  II, Ken-1chi Yoshihaco Yoshihako CHI, Mitsuaki Kimiyasu I: TRANSFORMED 7301USOPCT NIUMBER: US/ E: 2001-12-1 NUMBER: PCT/J 2000-06-15		7100881077881111231533738 710088107788	445,045,056,000	Length D
771		77777777777777777777777777777777777777		B
09782 k1 ED MICROORGANISM AND PROCESS S/10/009,782 -17	ALIGNMENTS	S-09-252-991A-2506    S-09-252-991A-2507    S-09-252-991A-2614    S-09-252-991A-2614    S-09-252-991A-2614    S-09-252-991A-2615    S-09-252-991A-2505    S-09-252-991A-2505    S-09-252-991A-2506	-10-009-782-2 -09-807-788-4 -09-70-517C-09-252-991A-09	
ESS FOR PRODUCING		sequence sequence	Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence	Description
CING D-AM		10941, A 106941, A 106941, A 207068, A 206140, A 207942,  A 207	2000 Appli 2000 Appli	-

MINOAC:

```
Š
                                     밁
                                             Ş
  밁
          S
                    밁
                                                       밁
                                                              Ş
                                                                        밁
                                                                                Š
                                                                                         밁
                                                                                                 Š
                                                                                                           밁
                                                                                                                   Ş
                                                                                                                             밁
                                                                                                                                     S
                                                                                                                                              밁
                                                                                                                                                      8
                                                                                                                                                                밁
                                                                                                                                                                        Ş
                                                                                                                                                                                 밁
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                             5
                                                                                                                                                                                         S
                                                                                                                                                                                                           S
                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                    US-10-009-782-1 (1-1758) x US-10-009-782-2 (1-484)
                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                 ; LENGTH: 484
; TYPE: PRT
; ORGANISM: Alcaligenes
US-10-009-782-2
                                                                                                                                                                                                                                                                   Query Match:
                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                   SEQ ID
                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 2
SOFTWARE: PatentIn version
SEQ ID NO 2
  261
           814
                    241
                          754
                                     221
                                              694
                                                               634
                                                                        181
                                                                                 574
                                                                                         161
                                                                                                  514
                                                                                                                                           201
                                                                                                           141
                                                                                                                    454
                                                                                                                             121
                                                                                                                                      394
                                                                                                                                                                        274
                                                                                                                                                                                          214
                                                                                                                                                               81
                                                                                                                                                                                                           154
                                                                                                                                                                                 61
                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                    21
                                                                                                                                                                                                                            94
                                  CAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGGACCTGGCCGAGGGAAGCCATG
ATCGGCGATCTGTCGGACGCCGCCGCCGCACACCCCGGGTCGACGTGTTCGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                  7.05e-134
2511.00
100.00%
100.00%
76.11%
                                                                                                                                                                                                                                                                                                    xylosoxydans subsp. xylosoxydans
                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                          Conservative:
                                                                                                                                                                                                                                                             0000
84
4
                                          753
         873
                          813
                                                             693
                                                                              633
                                                                                       180
                 260
                                                                      200
                                                                                              573
                                   240
                                                    220
                                                                                                                                                                                                                          153
                                                                                                                                                             100
                                                                                                                                                                     333
                                                                                                                                                                              80
                                                                                                                                                                                       273
                                                                                                                                                                                                60
                                                                                                                                                                                                        213
                                                                                                                                                                                                                 40
                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                           93
```

	•	•										
Alignmer Pred. No Score: Percent Best Loc Query Ma DB:	RESULT US-09-1 GENEE	B 8	B · M	g Qy	D Q	D Qy	D Q	р .Q	B 7	B &	B 64	Ф
tch ::	PER PER PER PER PER PER PER PER PER PER	1474	1414 461	1354	1294 421	4 4		361	341	3 2 9	93 <b>4</b> 301	874 281
t Scores: .: Similarity: al Similarity tch:	788-4  4, Applicate information: Arephen Nur: Stephen Nur: Robert priverior GJE: FELLIGATION APPLICATION INFOLICATION INFO	ArgThr	GGCGCG        GlyAla	ACCGCC        ThrAla	CAGCTG	ACGGCG        Thrala	GGCACC       GlyThr	CCGACC	Alagly	GATGAJ        AspGLu	GCCGG1       AlaGly	CTGGA
; zy: ar1ty:	7-788-4 20 4, Application U INFORMATION: INFORMATION: INFORMATION: ANT: Stephen John ANT: Stephen John EXPERIOR: GJE-239 TO APPLICATION NUMB TO FILING DATE: 1999- APPLICATION NUMB TO FILING DATE: 1999- APPLICATION NUMB TO SEQ ID NOS: 4 NO 4 H: 484 H: 484 PRT ISM: Alcaligenes	CGCACGGCCGCC	CCGGTC        ProVal	ACCTTC	CAGGCC 	GTATGO	TTCCCC	Metile	Alaile	AGTCGC	ACGCACO ArgTh	CGCGTA
3.53e-13 2481.00 99.38% 98.76% 75.20%	ttion US critical Christ Chris	1485	TrpGlr	GAACAC GluH1s	GGGTAC	BAAGATO	GCGGGT	GGCTC	ETYrPh	GGCCGA	CATCAT	CCCTA
e-132 .00 8#	788-4  4, Application US/09807788  INFORMATION: NT: Stephen John Clifford T. NT: ROBERT CHRISTOPHER Brover FILVERTION: AMINOACYLASE AFFERENCE: GJE-239  APPLICATION NUMBER: US/09/ FILLING DATE: 2001-04-18  PPLICATION NUMBER: PCT/GB99, ILING DATE: 1999-10-20 OF SEQ ID NOS: 4 E: Patent Ver. 2.1 O 4 FRT SM: Alcaligenes SM: Alcaligenes SM: Alcaligenes		GAGCAG         GluGlr	CCTACC	TTCGCC	Acces	CTGGG	CASPG1	Metwei	GCGCGG	CACCIG       eThrIr	CGTGGC  - - - - rValAl
υμαραμ	788 d Tayl Brown E AND 09/807 8		GCGTTC	GAGCGC	GACCTO AspLet	CCTGACO	GCACTA:        Histy:	CCTGCC	GACGA         :AspG1	CAAATC	GTGCAA        pCysLy	CGGCTC       aGlySe
Length: Matches: Conservat! Mismatches Indels: Gaps:	or 178 US ',788		ACCGG	GCCGC	GGTGGT	CGCCGC	rgcgcg        ralaar	GCACGA          SAS	ACCCGA        uProAs	CAAGTA       rLysty	GCCCTT	CACCAT       rThrMe
: ative: hes:	i E		CAGCAS	CGCATO       aGly11	GTTCGA	GCGCTTO        ArgPh	GCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGC 	CGAGCG        pGluAr	PValG1	CGACGT         rAspVa	CCCCGA        eProGl	GCTCAA 
484 478 3 0	THE PRO		recces	CCATTC	CCCGGC	CGGCCT        eGlyLe	GGGCCT       uGlyLe	CCCGCA       gProH1	GCGCAT	GGTGCC         Valpr	ACTGAG        uLeuSe	GCAGGA
	PRODUCTION		CCGCGT	CGTGTA       rValTy	CACGGT	GGCCGG        uAlaG1	GTTCCC        uPhePr	TCCGCG	CCTGGC        eLeuAl	CGAGCT            OGLULE	CGGGCG         rGlyAr	CCGCGT
	O <sub>F</sub>		GGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCG	ACCGCCACCTTCGAACACCCTACCGAGCGCGCGGCGGCGGCATCCATTCCGTGTACGTCAAC 	AGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGAT 	ACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCG	TTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGGCCTGTTCCCGCTGGAG 	CGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGG 	SCHOOLS THE THE THE THE THE ALBERT CONTROL OF THE THE THE THE THE THE THE THE THE THE	GATGAAGTCGCGGCCGAGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCG 	GCCGGACGACCATCATCACCTGGTGCAAGCCCTTĆCCCGAACTGAGCGGGCGCGACCTG 	CTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTG 
	D-AMING		A 1473 I a 480	C 1413 I n 460	T 1353	G 1293	G 1233	9 380 P 380	y 360	1053 1053 100340	ng 993  -   320	1G 933
	aminoacids				_	_	-			•		•

```
밁
          Š
                  밁
                          5
                                   몽
                                         γ
                                                   밁
                                                          S
                                                                    밁
                                                                           Š
                                                                                    밁
                                                                                           Ş
                                                                                                    밁
                                                                                                            δÃ
                                                                                                                     밁
                                                                                                                             Ş
                                                                                                                                      밁
                                                                                                                                             Š
                                                                                                                                                      밁
                                                                                                                                                              Š
                                                                                                                                                                      밁
                                                                                                                                                                              õ
                                                                                                                                                                                        맑
                                                                                                                                                                                              Ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                               Q
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                          US-10-009-782-1
                                           934
                                                                            814
                                                    281
                                                            874
                                                                     261
                                                                                    241
                                                                                            754
                                                                                                    221
                                                                                                             694
                                                                                                                     201
                                                                                                                             634
                                                                                                                                      181
                                                                                                                                              574
                                                                                                                                                      161
                                                                                                                                                              514
                                                                                                                                                                       141
                                                                                                                                                                               454
                                                                                                                                                                                        121
                                                                                                                                                                                               394
                                                                                                                                                                                                        101
                                                                                                                                                                                                                334
                                                                                                                                                                                                                                274
                                                                                                                                                                                                                                                 214
                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                         21
                                                                                                                                                                                                                                                                                 94
                                                                                                                                                                                                                                                                                                  34
                                                                                                                                                                                                                                                                                          μ.
GGCCGCTCGCGCGAGACGCTGCCGGTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCG
                                                                                 CACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGC
                                                                                                                  CAGCGCGCCGCCACCGACGAGAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATG
                                                                                                                                                                    CTGGCGCCGCTGGCGCACGCCAACCCGCCCCCCCCCTGGACCTGCACGACGAAGGCGGC
                                                                                                                                                                                                                     GCGCCCGGCTTCATCGACTCGCACACCCACGACGACGACTACCTGCTCAGGCGTCGCGAC
                                                                                                                                                                                                                                                      ATCGGCGATCTGTCGGACGCCGCCGCCGCACACCCCGGGTCGACGTGTCGGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                      GlySerAsnThrProGlyArgArgAlaAspLeuGlyValArgGlyAspArgIleAlaAla
                                                                                                                                                                                                                                                                           (1-1758) x
                                                                                                                                                                                                                                                                                                         US-09-807-788-4 (1-484)
                         1053
                 340
                                 320
                                         993
                                                  300
                                                         933
                                                                          873
                                                                                          813
                                                                  280
                                                                                  260
                                                                                                   240
                                                                                                                   220
                                                                                                                            693
                                                                                                                                    200
                                                                                                                                           633
                                                                                                                                                    180
                                                                                                                                                            573
                                                                                                                                                                     160
                                                                                                                                                                             513
                                                                                                                                                                                     140
                                                                                                                                                                                             453
                                                                                                                                                                                                             393
                                                                                                                                                                                                                      100
                                                                                                                                                                                                      120
                                                                                                                                                                                                                              333
                                                                                                                                                                                                                                      08
                                                                                                                                                                                                                                               273
                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                       40
                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                               93
```

```
; APPLICANT: GATY Breton et. al
; TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUEN
; TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THE
; FILE REFERENCE: 2709.2004001
; CURRENT APPLICATION NUMBER: US/09/489,039A
; CURRENT EILING DATE: 2000-01-27
; PRIOR APPLICATION NUMBER: US 60/117,747
; PRIOR APPLICATION NUMBER: US 60/117,747
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 14342
; SEQ ID NO 9018
; SEQ ID NO 9018
                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
     밁
                   Š
                                         뮹
                                                         ρ
                                                                               ₽
                                                                                              δÃ
                                                                                                                                  , O
                                                                                                                   В
                                                                                                                                                     US-10-009-782-1 (1-1758) x US-09-489-039A-9018
                                                                                                                                                                                                                Score:
                                                                                                                                                                                                                          Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                      US-09-489-039A-9018
                                                                                                                                                                                                                                                                                                                                                                                                    US-09-489-039A-9018; Sequence 9018, App
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Gary Broker
                                                                                                                                                                                                                                                                         LENGTH: 49
                                                                                                                                                                                                                                                               ORGANISM: Klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1414
                        199
                                          43
                                                                                23
                                                                                                                                                                                                                                                                                                                                                                                                                                        481 ArgThrAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     441
                                                                                                  79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                  19 GAAGGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                    9
AspargIleMetAlaIleAlaProAlaLeuAspValAlaAlaGluGlnValIleAspGly
                                                 GACCGCATCGCCCATCGGCGATCTGTCGGACGCCGCGCACACCCGGGTCGACGTG
                                                                         LysGlyValIleAlaMetLys--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCCGCATCCGCGCCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCACGGCCGCC 1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAG
                                                                                                                                                                          7.8e-55
1115.50
.62.70%
48.16%
33.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                               pneumoniae
                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                      (1-492)
                                                                                                                --ValAspTrpLeuPheLysAsn
                                                                                                                                                                                                                                                                                                                                                            SEQUENCES RELATING AND THERAPEUTICS
                                                                                                                                                                        492
235
71
173
9
  82
                                      62
                                                         198
                                                                           42
                                                                                              138
                                                                                                                 22
                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1173
                                                                                                                                                                                                                                                                                                                                                                   KLEBSIELL
```

```
1096
                                                                                                                                                                                                                                                                                                              1036
                                                                                                                                                                          1156
          423
                                                                        403
                                                                                                                                                                                                           363
                                                                                                                                                                                                                                                                             343
                                                                                                                                                                                                                                                                                                                                                                              976
                                                                                                                                                                                                                                                                                                                                                                                                               303
                                                                                                                                                                                                                                                                                                                                                                                                                                              916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     556 CTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCCTTCTACCCG 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        163 AsnHisMetAspAspLeuPheArgProAlaAsnGluThrGluIleAlaGlyMetArgVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                319
                             GGCCTGGCCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGAC 1335
                                                              GGCCTGTTCCCGCTGGAGACGGCGGTATCGAAGATGACCGGCCTGACCGCCGCGCGCTTC
                                                                                                                              ProHisProArgLeuTrpGlyAlaPheProArgValLeuGlyHisTyrSerArgAspGlu 402
                                                                                                                                                CCGCATCCGCGCCTGTGGGGGACCTTCCCCGCGGGTGCTGGGGGACTATGCGCGCGGACCTG
                                                                                                                                                                                                ArgValMetArgTyrProValThrMetIleGlySerAspGlyLeuProAsnAspProMet
                                                                                                                                                                                                                                   CGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGAGCGC
                                                                                                                                                                                                                                                                  AlaAlaArgLeuMetProAlaGlyAlaIleTyrHisAsnMetAspGluGlnAspValArg
                                                                                                                                                                                                                                                                                                   GTGCCCGAGCTGCAGCCGGCGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAG
                                                                                                                                                                                                                                                                                                                                 GlnAlaGlyLysThrLeuGlnGlnIleAlaAspGluTrpGlnValSerLeuHisAspAla 342
                                                                                                                                                                                                                                                                                                                                                                   CTGAGCGGGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGGACCGCGTGCTGGCCGGACGACCATCATCACCTGGTGCAAGCCCTTCCCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                    MetLysGlnValThrAspGluPheAspIleValIleThrTrpSerGluAlaGlnProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlnGlnGlnAspIleAlaCysAspCysTyrProTyrSerAlaSerSerSerThrLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysGlyValTyrThrThrHisLeuArgSerGluPheGluProIleLeuGluAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerAlaPheGlnSerThrThrGluGluValMetAlaLeuAlaGluGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlnLeuArgAspAlaLeuArgGlnGlyAlaLeuGlyLeuSerThrGlyLeuAlaTyrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluAlaAlaArgProSerLeuAsnValGlyThrLeuIleGlyHisThrAlaLeuArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCCTGATCGAGGCCGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACGACGAAAATCGCGGGCCATGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGCTGGACGAAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATTGCGGCATCAGCCTGGCGCGCTGGCG---CACGCCAACCCGCCCGCCCCCCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleArgMetProGluTyrLeuProLysLeuSerGlnGlyValThrThrValIleValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuLeuGlyGluGlnGlnHisPheIleTyrProThrValGluAlaTyrAlaHisAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnCysGlyIleSerAlaAlaThrAlaThrMetArgGlyGluValProAspProMetAsn
442
                                                                                                 1275
                                                                                                                                                                   1215
                                                                                                                                                                                                                                                                    362
                                                                                                                                                                                                                                                                                                     1095
                                                                                                                                                                                                                                                                                                                                                                     1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       222
                                                                 422
                                                                                                                                                                                                                                                                                                                                                                                                      322
                                                                                                                                                                                                                                                                                                                                                                                                                                       975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          102
```

문

밁

5 B

밁

밁

B 22 B 23 B 23

밁

Ş

B 8

8 8

```
Š
                                                                       밁
                                                                                                  S
                                                                                                                                   밁
                                                                                                                                                                 S
                                                                                                                                                                                                    문
                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                            Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-009-782-1 (1-1758) x US-09-770-517C-2 (1-558)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Hypomyces mycophilus US-09-770-517C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-770-517C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 2
LENGTH: 558
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/09770517C GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: JP 2000-150578
PRIOR FILING DATE: 2000-05-22
NUMBER OF SEQ ID NOS: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: JP 2000-019080
PRIOR FILING DATE: 2000-01-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/770,517C CURRENT FILING DATE: 2001-01-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Matsuyama, Akinobu
APPLICANT: Tokuyama, Shinji
TITLE OF INVENTION: D-AMINOACYLASE AND GENE ENCODING THE
FILE REFERENCE: 06501-072001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Mitsuhashi, Kazuya
APPLICANT: Yamamoto, Hiroaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1336
124 AspGluGluCysArgThrThrLeuLysGlyValGlyMetPheGluTrpGlnThrIleGly
                                                                       104
                                        373 GAC-----
                                                                                                     349
                                                                                                                                                                   289
                                                                                                                                                                                                                                 229
                                                                                                                                                                                                                                                                                                  172
                                                                                                                                                                                                                                                                                                                                                               118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       443
                                                                                                                                   84
                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                          44 AlaThrProAspThrArgHisLeuAspValThrGlyTyrIleLeuSerProGlyPheIle
                                                                                                                                                                                                                                                                                                                       24 AlaAspValLeuValSerLysGlyLeuIleAlaLysIleGlyAsnProGlySerIleAsn
                                                                                                                                                                                                                                                                                                                                                                                                                        4 GluileLeuPheHisSerAlaThrValileThrGlyAspGluAlaAlaGlnProPheVal 23
                                                             AsnValAspGlnLeuArgAlaIleArgGluGlnIleAlaGlyTrpAsnGlyAsnProThr 12:
                                                                                                                           ThrGlnGlyCysThrThrGluValValGlyGlnAspGlyIleSerTyrAlaProIleArg 103
                                                                                                    CACGCCAACCCG-----
                                                                                                                                                           TCGCAGGGCGTCACCACGGTGGTCACGGCCAATTGCGGCATCAGCCTGGCGCCGCTGGCG 348
                                                                                                                                                                                          AspMetHisAlaHisSerAspLeuTyrLeuLeuSerHisProAspHisGluAlaLysIle
                                                                                                                                                                                                                        GACTCGCACACGACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATC
                                                                                                                                                                                                                                                                            GCCGCCGCACACCCGG---GTCGACGTGTTCGGGCCTGGTGGTCGCGCCCCGGCTTCATC
                                                                                                                                                                                                                                                                                                                                                         GCCGACCTGGGCGTGCGCGGCGACCGCCATCGCCCATCGGCGATCTGTCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlualaValMetValAsnGlyValMetSerTyrGlySerAspLysLysIleThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATTCCGTGTACGTCAACGGCGCGCCGGTCTGG---CAAGAGCAGGCGTTCACCGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProGlnThrValArgAspValAlaSerPheSerAspProLysArgProAlaAspGlyIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---AlaGlyArgPheLeuArgArg 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGCCGGCCGCGTGCTCGCACGC 1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.62e-26
612.00
45.32%
31.38%
18.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.0
                               -CTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         171
171
76
76
226
72
                                                                                               -CCCGCCCCCTG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAME
                                                                                                                                                                                                                                                                                                                                                          -GAC
   143
                                                                                                                                                                                                                            288
                                                                                                                                                                                                                                                                                           228
                                                                                                                                                                                                                                                                                                                         43
                                                                                                                                                                                            83
                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                         171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  462
```

```
1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1003
                                                                                                                                                                                  444 AlaTyrGlyThrPheThrArgTyrLeuGlyH15TyrSerArgGluLeuSerLeuValAla
364 IleGlyThrThrAsnGluProSerIleAlaSerTyrSerGlyArgArgLeuSerGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     344 ValGluIleLysGlyCysAspGlyGlyH1sGlyIleProThrAsnTrpAspGluIleGln 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        889 TACGTGGCCGGCTCCACCATGCTC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              832.CTGCCGCTGATCGAGGCCGCCATGGCGCGC---CAGGACGTCTCGCTGGACGCGTATCCC 888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        598 ACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184 IleGlnAspGlnIleGlnLeuLeuArgGluAlaMetAlaGlnGlyAlaValGlyMetSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      284 IleSerMetValAspLysSerLeuAlaAlaGlyValAspValThrLeuAspThrTyrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            264 IleH1sLeuThrH1sAlaThrLeuAsnPheSerGluAsnLysGlyLysAlaProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      244 PheGlnAlaIleGluSerTyrAlaGluMetLeuAspLeuGlyGluSerThrGlyCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   712 GAGCACATCGTGGCCGCGCGCGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCG 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  164 GlnGlyAsnLeuArgLeuLeuAlaCysGlyProTyrAspThrProAlaSerAlaGluGlu
                                                                                                                                  CAGCCGGCCGGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCG 110
                                             GGGCGCGGCCAGCTGCAGGCCGGGTACTTCGCCCGACCTGGTGGTGTTCGACCCGGCCACG
                                                                                      LeuProSerMetIleAlaHisLeuThrSerArgProAlaLysArgLeuSerValTyrPro 483
                                                                                                                                                                                                                                CTGTGGGGCACCTTCCCGGGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCG
                                                                                                                                                                                                                                                                           HisArgValHisMetAlaGlySerAspGlyIleLeuHisGlyGlnThrLeuHisProArg
                                                                                                                                                                                                                                                                                                                       TTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCCCCATCCGCGC 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaGlnSerValGlyLysProThrIleGluValPhePheGluIleLeuGlnLysAspLys 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProGlnGluThrLeuLysArgLeuGluAspAlaGluSerArgGluLysIleArgIleAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrLeuProGlyCysThrThrLeuAlaAlaLeuLeuProSerTrpAlaSerAlaGlyGly 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCCGCTGAGCGCGAT-----GGCGGCATCTACGCCACCCACATGCGCGACGAAGGC 711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerGlyLeuThrTyrThrProGlyMetTyrAlaSerThrSerGluLeuAlaSerLeuCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGTGATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCGCTCGCGCGAGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACTACCTGGACGCGTTGCGGGCCACGCCGGCCGGCCGTCAACGCCGCCTGTATGGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --- GGACGCACCATCATCACC---TGGTGCAAG-----
503
                                             1344
                                                                                                                                       1284
                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      343
                                                                                                                                                                                    463
                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183
```

Š

B 63

뭐

```
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 17231
LENGTH: 2294
TYPE: PRT
ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-17231
                                                                                                 õ
                                                                                                                                         밁
                                                                                                                                                                           Š
                                                                                                                                                                                                                     멼
                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                        멹
                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-009-782-1 (1-1758) x US-09-252-991A-17231 (1-2294)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 17231, Application US/09252991A GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: MAIC J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONA
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1345
                         342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1465 GTGCTCGCACGCACG 1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    751 GlyAlaLeuProArgArgArgHisGlnGlyProAlaGlyGlyGlyGlyGlyArgArgArg
                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              504
                                                                                                                                                                                                                                                                                        731 ProGlyAlaGlyHisArgProProGlyGlyAlaAlaAlaGlyAspArgAlaAlaThrPro
                                                                                                                                                                                                                                                                                                                                  165 GTCGGACGC-------
                                                                                                                                                                                                                                                                                                                                                                  711 AspGluAlaGlyArgArgArgAlaGlyValGlnAlaHisProArgHisArgArgAsp 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       544 ThrLeuArgArgSer 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9 CTTGATCGCGGAAGGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCT
GCTGGCGCA-----CGCCAACCCCGCCCCCCCTGGACCT---GCTGGACGAAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuValAsnGlyGlnIleAlaValAspGluGlyLysMetThrGlyThrArgGlyGlyLys 543
                                                                                               CAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCC
                                                                                                                                     ProLeuGlyGlyAspHisProArgArgArgAlaValArgGlnArgGlnArgGlnArgAla
                                                                                                                                                                                                                                                                                                                                                                                                        ------GGGCGTGCGCGGCGA-------CCGCATCGCCGCCATCGGCGATCT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaValGlyArgTyrArgHisArgProGlyLeuAlaAlaGlyLeuAlaValArgProAla 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAlaArgProGlnArgAspAlaArgProProPheAlaIle------ProAla
                                                                                                                                                                         CTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValLysAspMetSerThrTyrGluGluProLysValProSerArgGlyIleArgPheVal 523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGCGCATTCCATTCCGTG 1404
                                                           -----ArgArgValProAlaAla,
                                                                                                                                                                                                                                                  --- CGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.5e-17
455.00
34.51%
29.97%
13.79%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels:
                                                           796
                                                                                                                                       790
                                                                                                                                                                                                                                                    221
                                                                                                                                                                                                                                                                                            750
                                                                                                                                                                                                                                                                                                                                  173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83
                     392
                                                                                                                                                                                                                 770
```

.yGlnArgArgAlgAlgArgA	TITO P	Ę
-CGACGAGCGCCCGCA	137	2 5
pProAlaGlnAlaProProH1sArgTrpArgValH1sArgH1sGlnProPheArg 1	01 A	용
CGGCCCGACCATGATCGGCTC	1098 C	δ.
	1081 P	<del>Q</del>
TGGACGAACCCGACGTGCAGCG 1097	1074 G	δ
	1061 L	В
-CAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGCGCGC	1017 -	ΥO
uProAlaArgArgThrAspGlyArgArgGlyAspProArgGlyArgArgHisAlaGln 1060	1041 L	g
1016	984 -	VΩ
	1021 Å	Ď
AACTGAGCGG983	972 C	Ϋ́
.aGlnAlaGlyGlnAlaGlyArgGlnArgAlaAlaGlnProValArgValAlaLeuVal 1020	1001 A	B
TGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCC 971	924 C	γ
:::     gargHisargargalaGlyaspProGlnalaThrHisGlyargGlyProGlyPro 1000	981 Å	日
GCTCCACCATGCTCAAGCA	897 C	δĀ
	961 A	В
TGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGC 896	837 6	δõ
   spArgProAlaValProGlyLeuAspArgLeuProArgAlaAlaHisArgAlaGlvPro	941 4	g
ACGCTGCC 836	828 6	Ϋ́O
	924 F	đ
CCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCTCGCGCA 827	768	Ŷ
729 GCTGGAGGAAACCTTCCGCATCGG	905 2	₽ 5
roryrserArgArgAlaArgAsnGluArgLeuProGlnLeuLeuArgAlaLeuGlyGly 904		} {
CCACATGCGCGACGAAGGCGAGCACATCGT	93	Ş .Q
isLysser 884	77	밁
ACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCAC 692	633 (	Ą
yAlaAlaThrProSerArgTrpArgProMetProAlaProLysAlaAla- 876	860 :	ğ
GCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCGCCAC 632	573 (	δ
rSerAlaArgProProAlaThrProAlaAlaSerProProLysG 860	845	B
CAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGAGCCTGGCCGAGGAAGCCAT 572	513	δõ
832 lyAsnCysPro	832	日
GTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCGC	453	δð
	916	밁
TCTTACCGTTTCGAGCGCTTCGCCACTTCACTACTACACTCACT	393	Ϋ́O
llaAlaAlaHisArgArgArgProAlaGlnGlvGlnGlvProGlvAlaGlvHtgArg	797	日

																•			
•													٠						
RESULT US-09- US-09- GENE GENE GENE GENE GENE GENE GENE GEN	P 64	g 5	B 5	. 물	8 B 1	o B	Qy	B 5	뭥	රි දි	Qy	B 7	5 8	ν	밁	Ş	용 :	5 5	B 5
OULT 6 09-252-9 equence ENERAL I APPLICAN TITLE OF TITLE OF TILE REF CURRENT   CURRENT   PRIOR API PRIOR API PRIOR API PRIOR API PRIOR API PRIOR API PRIOR FII NUMBER OI EQ ID NO	1722 1387	1662	1350	1330	1310	1290 1521	1488	1443 1270	1250	1232 1410	1356	1220	1200	1269	1180	1239	1160	1209	1170
RESULT 6 US-09-252-991A-26129 ; Sequence 26129, Application US/09252991A ; GENERAL INFORMATION: APPLICANT: MAIC J. Rubenfield et al. TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUENCES RELATING TO PSEUDOMO) TITLE OF INVENTION: ARENGINOSA FOR DIAGNOSTICS AND THERAPEUTICS FILE REFERENCE: 107196.136 FILE REFERENCE: 107196.136 CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR APPLICATION NUMBER: US 60/094,190 PRIOR FILING DATE: 1998-07-27 NUMBER OF SEQ ID NOS: 33142 ; SEQ ID NO 26129	CGAGCTGGGCCAGATCGCCCTGAGCTACGAGAAGCT 1757 	AATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGC 1721	CAAGGAAGTGATGGGCGCGCGCCTGCGGCGCGAAGGCCCCGGAA	:::    :::		AspGluProArgProProAlaProGlyAlaAlaAspArgAsnArgAlaGlnLeuLeuHis 130		CAC		CAACGGCCGCCC-AACGGCCGCCGCC	CGCCACCTTCGAACACCCTACCGAGCGCGCGCCGGCATCCATTC				GlyLeuGlyAspAspLeuArgProArgArgGlnGluArgGlyArgProAlaGlyGly	GGTATGGAAGATGACCGGCCTGACCGCCGC	ArgProGlyAlaGlyLeuHi	CGACCTCCC	GIGGGCACCTICCCGCGGGTGCTGGGGCACTATGCGCG

Qy 855GGCGCGCCAGGACGTCT	Db 237 GlyGlnGlyGlnProArgArgGlnProAlaProAlaGlyCysProArgArgGlnProPro	219 LeuProArgSerValGlyArgProAlaGlySerProProGlyLeuSerProAl	750 CCCCCCCCCCC - CGACGGCGGCGCGCGCGCGCGCGCGCGCGCGCGCGCGCG	199 HisAspGluProGlyArgPro	  PAlaProAr  GCATCTACG	Db 172 ProGlnAlaAlaAlaHisArgAlaHisProTyrLeuArgAlaGlyPro Oy 570 CATGGCCAGCGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCGCGCG	gProGluGlyArgArgGlnH1sArgAspAr CGGCCAT	136 ValArgArgAlaGlyArgArgSerSerAlaGlyGlyArgGlyMetGlyArgIl 462 CGCCTGTATGGGGCCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCG	TTACCGTT	291 GCAGGGC	Qy 231 CTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCT	171 CGCCGCCGCGCACA            69 ArgArgArg	QY 111 GCGGCGCCGACCTGGGCGTGCGGCGACCGCATCGGCCGATCGGCGATCTGTCGG 	57 C	US-10-009-782-1 (1-1758) x US-09-252-991A-26129 (1-885)	Alignment Scores:  Pred. No.:  3.38e-16  434,00  Matches:  Percent Similarity:  Best Local Similarity:  30.53%  Query Match:  13.16%  DB:  Alignment Seores:  3.38e-16  Matches:  214  Mismatches:  248  Indels:  210  Gaps:  37	; LENGTH: 885 ; TYPE: PRT ; ORGANISM: Pseudomonas aeruginosa US-09-252-991A-26129
C 872	- 854 o 256	E 236	74 21	20	19	- 187 C 629	9 17 C 56	e 154 C 521	6 41 6 13	A 350 Y 119	°C 290	9 86 9 86	A 170	3G 110			

	Дb	257	GlyGlyArgCysProArgProCysArgAlaLeuProGluProGlyGlnProGlyArgGly 2	276
	Ωy	873	GGTATCCCTACGTGGC	99
	å	277	AlaAlaArgArgArgArgArgGlyProValArgArgProPheArgCysThrAlaLeuArg 2	96
	Qy	900	CTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGCTGGCCGGACGACCATCATCACCTG 9	56
	dd	297	ArgGlnArgAlaAlaAlaLeuProArgSerValAlaGlnArgAsnProAlaProLeuArg 3	316
	VΩ	957	ဂို	1004
	В	317	AlaAlaThrValAlaAlaGlyProAlaArgGlnArgH1sArgArgProAlaArgLeuVal 3	36
	Qγ	1005	GGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCG	.064
	B	337	GlyThrAlaArgProValProProAlaArgH1sAlaAlaAlaAlaGlyArgThrSer 3	S
	Qy	1065	CCTGGCGTTCGGCCCGACCAT 1	121
	B	356	ArgArgProValProArgLeuArgArgGlyArgHisArgProGlyIleAla 3	72
_	Qy 1	1122		$\vdash$
	D <sub>O</sub>	373	GlyArgLeuArgProProAlaAlaGlySerProGlyProGlyThrAlaValAlaGlyPro 3	92
	0γ 1	1146	نر	205
	ర్జ	ω	AlaGlnArgProAlaAlaGlyAlaAspAlaHisLeuAspGlyLeuArgLeuArgPro 4	11
_	Ωу 1	206		1259
_	ğ	412	AlaArgProGlyProAspHisValAlaValGluSerArgProGluAlaAspProArgPro 4	31
_	Qy 1	260		1319
_		432	AlaArgArgArgProGlyArgHisAlaGlyAlaArgArgProProAlaAlaArg 4	449
_	0у 1	320		1346
_		450	roGluArgProAlaProGlyThrGlyAlaCysGlnProAlaMetAlaAlaGlyThrArg 4	69
_	0у 1	347		358
_	Дb	470	ProValValAlaAlaProAlaGlyArgArgArgThrGluProGlyLeuArgProAspPro 4	69
_	Ωy 1	359	CGAACACCC 1	373
_	₽	490	AlaGlyTyrGlyProAspArgProAlaSerArgArgThrAlaGlyTyrLeuAlaGlyPro 5	9
	Ωу 1	374	-	433
		510	ValAlaAlaGlyArgProGlnProPheArgProGluHisProAlaAspGlyLysGlyArg 5	29
_	Ω <sub>y</sub> 1	1434	GCATGCCGGCCGTGCTCGCACGCACGGCCGC 1	484
m	р	530	AlaValProHisGlySer 5	49
_	Ωу 1	1485	GACAATCCGGCGTGAACGG 1	523
п	В	550	SerGlyGluArgGlnAlaGlyProGlyAlaArgArgArgArgAlaGln 5	69
_	Ωу 1	524	GCCCCCTCCCAACCCTGGA	559
-	Дb	570	ArgAlaCysProAlaAlaArgProArgProAspLeuValArgAlaThrAlaLeuArgGln.5	68
0	Ωу 1	560 (	CCCCTCCTCCGCTCGCAATACG	010
н	ğ	590	roAlaHisArgArgThrLeuValGluArg	9
n	Ωу: 1	11	CCCGGAAAATGACC	570
н	. qd	610	lyGlyArgGluAlaGlyArgGlnProAlaTyrProGlyArgArgPro 6	25

Db 213 GlyProArgGlyGinGlySerGlyAspHiSArgArgThrValAlaArgLeuProArg 232  Qy 330 CAGCCTGGCGCCCCGCCCAACCCGCCCCCCCCGGACCTGCT 380	288CTCGCAGGGCGTCACCACGGTGGTCACGGG		QY 225 CATCGACTCGCACGACCACGACGACAACTACCTGCTCAGGCGTCGGCGACAATGACGCCCAA 284	Qy 171 CGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCGGCCTT 224  Db 158roGlyHisLeualaArgProGlyProGlyGlnGlnArgGlyArg 172	Qy 111 GCGGCGGCCGACCTGGGCGTGCGGGGGGGCGATCGGCGATCGGCGATCTGTCGGA 170	QY 66 GCTGCTCGCGGGCGGCACCCTCATCGACGGCAGCAACACCCCGGG 110	Qy 6 CCACTTGATCGCGGAAGGAGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCT 65	16 Gaps: 009-782-1 (1-1758) x US-09-252-991A-19446 (1-937	Score: 433.00 Matches: 234 Percent Similarity: 34.29% Conservative: 41 Best Local Similarity: 29.18% Mismatches: 257 Ouerv Match: 13 13% Indeed: 270	3 8800-15 Torath.	SEQ ID NO 19446  SEQ ID NO 19446  LENGTH: 937  TYPE: PRT  ORGANISM: PSeudomonas seruginosa	SEAS	STICS AND THERAPEUTICS	ppiication US/09252991A ON: J. Rubenfield et al. ON: NUCLEIC ACID AND AMINO ACII	SULT 7 -09-252-991A-19446	1742		Qy 1671 GCAAGACCTGTCGCAGGCCAGGGCATCGCGGTCTCGACCCTGTCCAAGGC 1721
			n'o		н о								****	•			······································	·
Db 559 GlyGlyGlyArgArgGlyGlyArgGlyAspArgArgArgLeuLeuArg 574  Qy 1080 CGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCT 1139	1029CGACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGA	Qy 978 GAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGGCAAATCCAAGTA 1028	Qy 918 GGACCGCGGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACT 977	Qy 858 GCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA 917	Qy 798 GGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGC 857	780 459	Qy 738 AACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGCTGAT 779	Oy 678 CGGCATCTACGCCACATGCGCGACGAGGCGAGGACATCGTGGCCGCGCTGGAGGA 737 :::	402		621 362	Oy 620 620 Db 342 LeuLeuGlyArgLeuGlnArgArgProGlnGlyGlnValGlnLeuH1sArgAlaGlyGly 361		Qy 543GCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGG	Qy 486 GCTGCGCGCGGGCATGCCGGACTTGCAGCGCGCGCCGCCGACGAGGAAATCGC 542     :::	Db 273 ArgLeuProGluGluAlaAlaAlaAlaAlaArgArgGlyArgLeu 286	253 GlyTyralaGlyGlyArgArgGlyGlyLeuArgAlaArgThrArgAlaArgThrGlnGly  429 GGGGTTGCGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	Db 233 IleProGlyThrGlyAlaThrArgArgProAspArgArgProAlaLeuLeuGly 252

```
US-09-252-991A-30843, Application US/09252991A; Sequence 30843, Application US/09252991A; GENERAL INFORMATION: Rubenfield et al.; APPLICANT: MARC J. Rubenfield et al.; TITLE OF INVENTION: NUCLEIC ACID AND AN; TITLE OF INVENTION: AERUGINOSA FOR DIAK.
    FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
                                                                                                                                                                                                                                                                                     1752 GAAGCT 1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1482 CGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCT 1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1194
                                                                                                                                                                                                                                                                                                                                840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1140 GCCGCACGACGACGCCCGCATCCGCGCCCTGTGGGGCACCTTCCCGCGGGTGCT-----
                                                                                                                                                                                                                                             860 AspAla 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       575
                                                                                                                                                                                                                                                                                                                    AspAlaLeuGlnProArgProAlaGlyGlyProGlyGlyFroArgGlySerLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                CysGlnGlyGlyAlaValArgLeuArgHisProArgHisProValLeuProHisAlaGlu·839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAAGGCCCGGAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgArgProAlaArgLeuValLeuArgArgProArgArgProValAlaLeuAlaHisHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyAspAspHisArgAlaGlnAlaArgArgProAlaAlaAlaAspLeuArgAspProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGlyProValArgLeuGlnGlyArgGlnAspProLeuProLeuProAlaHisArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCAACCCTGGACGCAAACCGCTACAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGAGCGCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGA--- 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaGlyValArgGluGlyProValGlyArgLeuLeuArgAlaGlnLeuArgGlnGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaGlyArgAlaGlu---MetAlaGlyMetValHisHisArgGlyArgArgAlaGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProGlnArgProArgArgAspHisArgAlaArgHisHisAspHisAspProAlaGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAspArgArgGlyAlaValAlaAla-----GlyLeuProArgProAlaArgGlu 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCCCTCCGCTCGCAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----AspArgArgArgProGluHisLeuLeuHisProArgArgAlaAlaLeuValGly 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pro---AspProArgProAlaLeuProLeuArgGlyArgLeuAlaAlaVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProAspHisGluAlaAlaTyrArgArgProAlaAlaArgProGlnSerArgArgGlnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspAlaArgTyrLeuHisArgLeuGlnGluAlaAlaLeuProLeuGlyLeuArgArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGTGGTGTTCGACCCGGCCACGGTGGCCGATAC-----CGCCACCTTCGAACACCCTAC 1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgLeuGlnAlaAlaLeuLeuArgArgValGlnGlyLeuLeuProHisArgHisGlyHis 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgProArgLeuAlaGlnAlaHisGlyAla-----
                                                                   MAIC J. Rubenfield et al. MAINO ACID SEQUENCES RELATING AVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING AVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS INCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AATGACCCTGCAAGACCTGTCGCA------
                                                                                                                                                                                                                                                                                                                                                         -CCTGTCCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                       ------GGCCAGCGGCATCGCGGTCTCGAC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AlaLeuArgArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----CCT
                                                                                                  ő
                                                                                                                                                                                                                                                                                                                                                                                                                                         1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1685
                                                                                                                                                                                                                                                                                                                      859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 589
                                                                                                  PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                         ġ
Ş
                                      밁
                                                                           Ş
                                                                                                                                                       Ş
                                                                                                                    멼
                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; PRIOR FILING DATE: 1998-02-18; PRIOR APPLICATION NUMBER: US 60; PRIOR FILING DATE: 1998-07-27; NUMBER OF SEQ ID NOS: 33142; SEQ ID NO 30843; LENGTH: 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-009-782-1 (1-1758) x US-09-252-991A-30843 (1-663)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-30843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT
658
                                                                                                                    191
                                                                                                                                                                                              171
                                                                                                                                                                                                                                                                   151 AlaProAlaSerAlaGlyArgAlaCysCysAlaSerProAsnArgArgArgArgGluPro 170
                                                                                                                                                                                                                                                                                                                                                                                                464
                                                                                                                                                                                                                                                                                                                                                                                                                                    115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326 GCATCAGCC-----TGGCGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40 ArgValProAla-----CysArg-----ArgValProIleArgCysAlaAsnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24 TrpSerThrThrArgPro-----ProAlaAspArgSerGlyAlaThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86 TCATCGACGGCAACACCCCGGGGGGGGGGGGGGCGACCTGGGGGGTGCGCGACCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32. CCATGTCCCAATCCGAGTTCCCAGC------CTTCGACCTGCTGCTGCTGGGGGGGGGCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 ProAlaProProAlaTrpProGlnArgTrpProProArgArgAlaAlaArgAlaSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCACGCCAACCCGCCCGCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCG
                              TrpLysProCysAlaCysAlaLysAlaValGlySerAlaArgSerProAlaAsnAlaTrp
                                                                                                            CysSerProValAlaThrAlaProThrAlaThrCysSerProProSerAlaArgSerAla
                                                                                                                                                                                                                      TGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCCTTCTACC-----CGCCCGCCGCCCC 625
                                                                                                                                                                                                                                                                                                                                               SerAlaTrpTrpTrpLeu-----AlaProAlaArgCysCysTrpProAlaProPro
                                                                                                                                                                                                                                                                                                                                                                                     SerProAlaProAlaAlaCysArgArg---TrpProArgAlaAlaCysHisTrpProAla 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerSerAlaProAlaProAlaAsnCysCysCysLeuPheProAlaGlyProSerProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaGlyAlaCysCysTrpLysThrArgAsnValAlaGlyArgSerAlaThrAspAlaTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCCGCCATCGGCGATCTGTCGGACGCCGCCCCCCCCACACCCGGGTCGACGTGTCGGGCC
                                                                                                                                                                                       TrpProProSerProTyrAlaSerArgAlaGlyProAlaSerCysGlyArgProProAla
                                                                                                                                                                                                                                                                                                          CCACCGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCG------AGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCGGCCGTCAACGCCG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TrpProGlyArgProMetSerSerThr------------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----SerArgArg-----ProGlyTrpSerProAlaValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.95e-16
432.50
33.51%
27.52%
13.11%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/094,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                   ----GCGCCACCACCGAAGAGATCATCG 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202
202
244
246
243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----cecree
                                230
```

114 463

406 94 346 74 325 63 265 205

39

54

145

23

S

658

210 658

S 밁 S S 밁 Ş 밁 밁 δÃ 밁 20 문 δÃ 문 S

S

B Š Ş

ď

S

밁

문

	1414 GGCGCGGCTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCGCGTG 1467	Qy
	1354 ACCGCCACCTTCGAACACCCTACCGAGCGCCGCCGCCGGCATCCATTCCGTGTACGTCAAC 1413	B 54
	1294 CAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGAT 1353 :::                    524 OAlaHisArgProSerAlaSerAlaThrGlyTrpProGlyProAlaLeuAlaCy 542	р Q
	1268	당 원
	1259TGACCGCCG 1267          484 gAlaArgThrGlyIleArgArgThrAlaAlaAlaAlaCysTyrProProProAlaProGl 504	D 04
	1215GGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCC 1258        	B 8
	1172 GGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCT 1214 :	B 8
· .	GCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCCCCTGT	. B. 8
	1058 GCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCG 1111	B 8
	1013 GCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCG 1057    ::: :::                 386 UArgargArgValArgArgSerAlaArgArgAlaTrpArgProTrpProAlaGlyAr 405	g &
	953 CCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGGGCCGGATGAAGTCGCGGCCGAGC 1012	B 8
	905 CCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCA 952	D 04
	860	D Qy
	848 CCGCCATGGCGC859           316 ThrProTrpArgAspThrSerProCysValProAsnCysValAsnTrpArgArgArgIle 335	P 94
	31 84	p Q
	749 TCGGCCGCAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCA 808 :::     291 AlaMetProProSerThr	Db Q
	692 CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCA 748 	D Qy
	659	B 8
	231 ProAlaAlaSerAlaTrpCysProThrCysAsnSerAlaArgProSerAlaIleAlaSer 250	D.

. '		•						
US-1 OY OY OY OY OY OY OY OY OY OY OY OY OY	Allg Pred Scor Perd Best Quer DB:	RESUL US-09 Seq GEN HI TII TII CCU FR PR SEQ VS-09	p Q	р 8 8	D Q	D Qy	Qy Db	D D
0-009-782-1 45 CGATT           2 ArgAr 105 CCCGG             19 ProG1 153 CATCG       39 GlnAr 213 CGCGC ::: 59 GlnPr 246CG       79 GlyAr	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similarity Query Match: DB:	T 9 -252- ERAL PLICA PLICA TILE C T T T T T T T T T T T T T T T T T T T	1699 GCGGT .     647 -Arg2	1639 CGCGC	1588 AATA- 620 gCyss	1528 GCGTC	1468 CTCGC ::: 582 eAla	562 aArgi
782-1 (1-1758) x US-09 CGATTCCCAGCCCTTCGACCTG	••	991A-21920 PRT SEQ 1920 PS APPLICATION: FINUENTION: FINUENTION: FINUENTION: FILING DATE: FPLICATION NUM PILING DATE: PPLICATION NUM PILING DATE: PPLICATION NUM PILING DATE: PPLICATION NUM PILING DATE: PPLICATION NUM	CTCGACCCT	CGAGCGCAA      roGlyAlaA	erProArgA	GCCGCCCCT :::       SerAlaProP	ACGCACGGC	roArgAlaP:
- 4 6 1:16 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4.64e-16 431.50 35.84% 31.10% 13.08%	20 20 20 20 20 20 20 20 20 20 20 20 20 2	GCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCG 	CGCGCCGAGGGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATC	AATACGGCCCACCCGATATCGTGGGCAAGGAAGTGATGGGCGCGCCCTG                         gCysSerPTOArgArgProThrPTOArgSer	GCGTGCCGCCCCCCCCAACCCCTGGACGCAAACCGCTACATGGCCCCCTCCCT	CTCGCACGCACGGCCGCCTGAGGCCCGGGGGCGCAGCCCTTACAATCCGGCGGGAGCGGGGCG :::	aArgProArgAlaProArgArgArgProGlyArgSerProAlaThrAlaProAlaAlaPh
-252-991A-21920 (1-822) CTGCTCGCGGGGGGCACCCTCATCGACGGCAGCAACAC TyProAlaArgArgH18ProArgArgArgCCTGGGCGGTGCGCGGCGGCACCGCATCGCCGCCCTGGGCGTGCGCGGCGACCGCATCGCCGC       :::    1aProGlyGlnArgArgArgProAlaAlaAlaAlaGlnArg GCCGCCACACCCGGGTGACGTGTCGGGGCTGGTGGT :            InalaGlyGlnProGlyAlaAlaGlyAspHisHisArg CACACCCACGA	Length: Matches: Conservati Mismatches Indels: Gaps:	5529 O At O 77,	GAGCTGGGCC       OGlyLysArg	ATGACCCTGC	SATATCGTGG	3ACGCAAACC ;;; aArgArgArg	egeeecage     	JProGlyArg:
920 (1-822) GGCACCCTCAT	·· ve:	STICS	AGATCG 1738        Argser 659	AAGACCTGTC ThrGlyAlaA	GCAAGGAAGT	GCTACATGGCCC         ValargTrpPro	CCTTACAATO	SerProAlaT
TCGACGGCAGCA	822 223 34 227 227 42	SEQUENCES RELATING AND THERAPEUTICS	· <b>co</b>	GCAGGCCAGC        aargPro	GATGGGCGCG	CCCTCCCTCC    roTrpArgSe	AATCCGGCGTGAACGGGGCG              AlaAlaAlaThrGlyAr	hrAlaProAl
								us
104 18 152. 152. 38 38 212 245 58 78 78		то решоомо		1698 646	1638 630	1587 620	1527 600	. 2
		Ã						

													•	
A11	US-S	DP QA	р <sub>6</sub>	B 5	ру У	ος VQ	P 6	d g	р. Q	дь V9	g Qy	gg Qy	g Qy	. B
gnment Scores:	RESULT 10  US-09-252-991A-32204, Application US/09252991A  Sequence 32204, Application US/09252991A  GENERAL INFORMATION:  APPLICANT: Marc J. Rubenfield et al.  TITLE OF INVENTION: AUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONA  TITLE OF INVENTION: A RENGINOSA FOR DIAGNOSTICS AND THERAPEUTICS  FILE REFERENCE: 107196.136  CURRENT APPLICATION NUMBER: US/09/252,991A  CURRENT APPLICATION NUMBER: US 60/074,788  PRIOR APPLICATION NUMBER: US 60/074,788  PRIOR APPLICATION NUMBER: US 60/094,190  PRIOR FILING DATE: 1998-07-27  NUMBER OF SEQ ID NOS: 33142  SEQ ID NO 32204  LENGTH: 651  TYPE: PRT  ORGANISM: Pseudomonas aeruginosa  US-09-252-991A-32204	1713 GTCCAAGGC	1659GAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCT 1712 :::::                   ::: 606 HisLeuAspHisHisProAlaArgGlnAspArgGlyHisArgGlnGlnArgHisGlyAla 625	1620 AGTGATGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	1566 CATGGCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGA 1619	1506 ACAATCCGGCGTGAACGGGGGGGGGGGGGGGCGCCCCTCCCAACCCTGGACGCAAACCGCTA 1565	1458CGGCCGCGTGCTCGCACGCACGCACGCCTGAGCCCCGCGCGCCAGCCCTT 1505	1443CACCGGCCAGCA 1457 	1392 CATCCATTCCGTGTACGTCAACGGCGGCCGGTCTGGCAAGAGCAGGCGTT 1442	1332 CGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGG 1391	1287 GCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTT 1331	1266 CGCGCGCTTCGGCCT	1206 GCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGC 1265            424 GlnArgProArgHisGlnProArgArgLeuArgProGluArg 437	 

Alignment Scores:

. 6	QΥ	Db	<b>8</b>	8	문	Ş	문 :	6 B	δ	₽	δ	. 등	S B	γQ	문	Qy	<b>D</b>	δ	ğ	0	₽	VΩ	B 8	밁	Ş	pb oy	. US-	Score Score Perce Best Query DB:
277 Pro	786 CCAC	62 Val	732	90 CAC	22 Ser	630 CAC	.03 :	183 Arg	561 CG/	163 Pro	519	46	126 Pr	O	H	363 CG	97 Arg		77 Pr	285 GA	-57 Су	234 GC	174 CG    44 Ar	25 Pr	114 GC		10-009-7	No.: nt Sin Local Match
AlaAlaHis	AAGGTC		GGAGG	CCACATG	AlaGluAl	ACCACCGAAG.		Hisalaal	GAGGAAGC	oProAlaPr		: :	ATS	TGGACGCGT	gThrAspG	СССССТО	ProGly-	сстесс	::: roValProAr	ATCTCGCAGGGC	BAlaProG	CACACCCAC	GArgSer-	oGln		GCCCTTCGACCTG         AlaGinGluproG	82-1 (1-1	illarity: Similarii
elyglyg	- ດ		sGlyArgArgLe AGGAAACCTTCC	GCGA	.aGlyGly <i>i</i>	AGATCATC	gArgArgA       gArgArgA	Hisar		онівагд		laAr	gAlaGln	TGCG	lyProGly	CCTGC	GLy	CCGCTGGC	  rgArgArg	GCCTCACC	  luArgAlaAr	GACGAC	ACCCGGG	lnAlaAr	II ODGGGCG	СТСС Туат	758) x	5.1 430 34. ty: 29. 13.
isālaās		uProHis	uArgAı	_ ბ	lyArgGlyPro	GAGGTG	rgHis-	rgProG			KOOOOO	Ceceero          ArgglyA	GlyGlyH	- či	GlyArg	TGGACGAAG	:  GlyArga	GCACGCC	· 	ACGGTG	gProA	AACTACCTG	TCGACGTG	gLysAr	Tececeec	TCGCGGGCGG         gAlaGlyArg	US-09-25	1e-16 ).50 57% 59% 05%
PH1sArgGl	CCAGCCCA	sccecexecties	GlnGl	GAGCAC	roArgGlyP	ecceecce	TCGACCGGC	lyAlaPheL		 gArgAr	CCGACGA	ATGCCGGACT rgGlvProal	sGlyGly <i>i</i>	Aceccece		GCGGCTCT	:      gProAl	ccecc	      	GTCACGGG	gProH1s	CI	TCGGGCCT	gProGln	- G	GGCACCCT	2-991A-3	Length Matches Conserv Mismatc Indels:
nAlaSerP	ATTTCGGCCGC	<b>⇒</b> − ∂	္က ရွိ.	. id.	::; yPheLeuGlnP	TGCCGGCCGCTGAGCGCGCATGG	GCCTTCTAC	euProGlyAs		laGlyArg	CARATOCO	TGCAGC	pargar	GCCGTCAA		TACCG	laGlyAr	:	rgArgAr ::		Hispropr	ត្ត	TGGTCG     YValse	AlaArgGl	CGCCGCCA	CATCGACGGC        ProArgArgV	2204 (1-	th: thes: servative latches: ls:
::: roValL	ice	GTGCCGGTGGTGATCTC        rgAlaSerGlyGluAsp	ArgGlyAl	GCGCT	ProHisar	GCATGGCG	CCGCCC     spalag	spalaas		Argālaāl	2 5	010000	  ValArgAr	ceccecc		GAGCGC	TrpGlnG		SerArgP	:	          roArgArgAs	GCGACATG	rGlnProV	lnArgArgo	GCCGCCATCGGCGATCTG	AGC ala	651)	651 208 35 247 213
gArgI	CGCGAGACG	> - G	aGlyLeuP		  sArgh	ATCTA	GCCGCCGCG      1   1	<b>pPheLeu</b> G		aSerPro	Greene		  gProGlyA	TGTATGGT	À-6	TCGCCGA	2		r - 0	-TTGCGG	Leu		CCGGCTTCATCGA	GlyAspLeu	TCGG	AACACCCCGGG         spHisArgGly		•
e 29	CT 833	CA 785	. 26	731	1s 24	88 S	GC 629	ly 202	- 56	Ala 182	, n	51	la 14	TGGG 476	ln 12	TA 42		י ער	96 ST	ا 3- . س	Leu 76	י פ ס	ACTC 233	His 43	ACGC 173	GGCG 113   YArg 24		

-		
508 SerArgArgArgSerLeuAlaAlaGluArgThrGl	. Db	yAlaArgGlyArgAla
1209	Qy	QY 429 CGCGTTGCGGGCCACGCCGGCGGCG 452
488 ArgAlaProProArgArgProAlaAlaGlyAlaAl	Db	186
v	Qy	375 CCTGCTGGACGAAGGCGCTCTTACCACTTACACTALGACTCCTCTCACTACCACTACTCCACTACTACTACTACTAC
1110 CGGCCCGACCATGATCGGCT             468 ProProProHisProArgProSerGlyValArgAr	4a	QY 336 GGCGCCGCTGGCGCACGCCAACCCGGCCCGCCCCTGGA 374
AlaProAlaGlyAspAlaGlyGlyAsnLeu	. b	Db 146 AlaLeuProArgThrAlaGlyGlyGlyHisArgArgHisGlyGlnValGlyArgGln 165
1086CG	. Qy	
:::	מם	
1044 GCTGCAGCCGGCCGCCCATCTACTTCATGATGG	Qy	219 CGGCTTCALLACTAR - TOUR THILDE TOURS CONTROLLED TO THE CONTROLLED TO THE CONTROLLED TO THE CONTROLLED TO TOUR TOUR TOUR TO THE CONTROLLED TO THE CONTROLL
413 AlaGlyArgGlnArgGlyThrArgAr	g 4	
401AspalaIlePr	0, 0,	
6 CGGACGCACCATCATCACCTG	VQ V	Qy 135 CGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCGCGCG
	. מם	
876 GGACGCGTATCCCTACGTGGCCGGCTCCACCATGC	Qγ	######################################
816 CCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCC             378 ProArgHisArgSerThrAla	Qy dd	Qy 21 AGGAGAGATTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGCGG
359 ProArgArgSerArgArgGlyAlaThrAlaAspAl	Db	US-10-009-782-1 (1-1758) x US-09-252-991A-27980 (1-1002)
774	ν	12.87% Indels: 16 Gaps:
717 CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG	o <sub>Q</sub>	Score: 424.50 Matches: 222 Percent Similarity: 34.03% Conservative: 23 Best Local Similarity: 30.83% Mismatches: 236
336H	Δb	ment Scores:
657 CCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC	γο	; ORGANISM: Pseudomonas aeruginosa US-09-252-991A-27980
0	Db .	; LENGTH; 1002 ; LENGTH; 1002 ; TYPE: PRT
0	Qy .	HALUN FILING LATE: 1998-07-27  NUMBER OF SEQ ID NOS: 33142
	ם א	PRIOR FILING DATE: 1998-02-18 PRIOR APPLICATION NUMBER: US 60/094,190
ט מ		; CURRENT FILING DATE: 1999-02-18; PRIOR APPLICATION NUMBER: US 60/074,788
513GCAGCGCGCCGCCACCGACC	QY QY	NCE: 107196.136 PLICATION NUMBER: US/09/252,991A
3 ProTrpProLeuPr	PSEUDOMONAS	QUENCES RELATING TO
512	Qy	)80, Application US/092 )RMATION:
243 AlaGlyGlyGluIleProAlaGluAlaAlaProA	da	RESULT 11 US-09-252-991A-27980
471 GGTGGGCCATTCAACGCTGCGCGCCC	γo	Db 647 HisArgHis 649
223 GlyArgGlyProPheLeuArgProAlaArgGlyG	. Дъ	Oy 1689 CAGCGGCAT 1697
453	Qy	TyrProHis
	_	

520	SerArgArgArgSerLeuAlaAlaGluArgThrGlyPro	508	뮍
1241	GCCTGTTCCCGCTGGAGACGGCGGT	1209	Qγ
1208 507	Consequence   Consequence	488	g S
7	roProProHisProArgProSerGlyValArgArgArgArgThrGlyHisArgValHis	468	문
1148	CCGACCATGATCGGCTCCGACGGCCTGCCGCACGA	1110	νQ
467		448	В
1109	ccigcceti	1086	Qγ
447	roArgGlySerProPro	430	В
1085	SCCGGCGCCATCTACTTCATGATGGACGAACC	1044	δ
429		413	뭣
1043	GGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGA	993	Ş
412		401	밁
992	CGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCT	936	Qy
400	GlyArgProArgGlyArgLeuProProArgGlnArgProPro	387	밁
935	GACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGA	876	Ş
386	ProArgH18ArgSerThrAlaLeuCys	378	밁
875	CCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCGCCAGGACGTCTC	816	Qy
377	ProArgArgSerArgArg	359	밁
815	CAATTI	774	οy
358	HisArgGlyHis	.345	뮻
773	- a	717	δã
344	HisproProAlaGlyGlyThrProGly	336	밁
716	CCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACCCAC	657	δ
335	ArgileProProArgArgThrArgProValLeuLeuHisGlyAsnGlu	320	밁
656	G	606	δÃ
319	GlyArgGlyThrArgGlyAlaGlyAspArgLeu	303	밁
605	GGCCGAGGAAGCC	558	δδ
302	GlyArgArgGlySerProArgProArgSerArgArgGlyThrAlaProGlyH1sGlyArg	283	. B
557		513	Ş.
282	ProTrpProLeuProValProGlnArgThrArgLeuPheAspProAlaProProProGlu	263	뮍
512		512	οy
	Αl	243	₽.
512	GGTGGGCCATTCAACGCTGCGCGCCGCGTCATGCCGGACTT	471	VQ.
242	:::          :::       :::	223	문
4/0	TUTATORIORACIONAL		;

```
APPLICANT: MATC J. RUBENFIELD et al.

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PITTLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERRENCE: 107196.136

CURRENT APPLICATION NUMBER: US/09/252,991A

CURRENT FILING DATE: 1999-02-18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR FILING DATE: 1998-02-18

PRIOR APPLICATION NUMBER: US 60/094,190

PRIOR FILING DATE: 1998-07-27

NUMBER OF SEQ ID NOS: 33142

LENGTH: 1149
                                                   S
                                                                                   밁
                                                                                                                Š
                                                                                                                                 US-10-009-782-1 (1-1758) x US-09-252-991A-25557 (1-1149)
                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                j ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-25557
                                                                                                                                                                                                                                                              Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-252-991A-25557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 25557, Application US/09252991A
                                                                                                                                                                                                                                                                                                                                       LENGTH: 11
TYPE: PRT
                                                               152 ArgAlaHisArgGlnProSerAlaProValValArgArgProAlaAlaAlaGlyValAsp 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1455
                                                   72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 664 AlaProArgArgGlySerGluGlyAlaValLeuGlnArgGlyArgThrGlyArgGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                554 ThrProLeuArgProProAlaProArgGlnProGlnProValSerProArgArgArgArg 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1242
                  CGCGGGCGGCACCCTCATCGACGGCAGCAACACCCCGGGGCGGCGGCGGCGACCTGGGGCGT 131
                                                                                                CGCGGAAGGAGATTTCCATGTCCCA----ATCCGATTCCCAGCCCTTCGACCTGCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAGGCCAGCGG---CATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCCAGATCGC 1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerArgArgH1sProGly----GlyAlaGlyGlyAspGluAspGlyThrGlnH1sProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGGGCGCGCGCGCGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTC 1682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCCCCTCCCTCCGCTCGCAATAC-----GGCCCCACCGATATCGTGGGCAAGGAAGT 1622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          {\tt ProGlyGlnProGlyGlyArgCysHisProSerLeuGlyGlyValAlaProArgThrPro}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -------GluargGlnTyrArgAlaGlyProGlyArgAlaArgProAspGlyArg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---ArgArgGlyArgGlyArgProCysProProGlyArgPheGluArgAlaAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCCGGCCGCT-----GCTCGCACGCACGCCCTGAGCCCGGCGCGCCAGCCCTTACA 1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleValProArgMetGlyGlyArgThrAlaGlyHisArgSerArgArgProAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGC 1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGGCAGCTGCA 1301
                                                                                                                                                                       1.21e-15
424.50
34.75%
30.82%
12.87%
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---ProSerArgArg-----ArgProAlaPheAlaValGluProGln
                                                                                                                                                                                    Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                  Length:
                                                                                                                                                                 1149
196
25
224
191
33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TO PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
              뭐
                                            Ş
                                                                            밁
                                                                                                          Ş
                                                                                                                                         밁
                                                                                                                                                                         Ş
                                                                                                                                                                                                        В
                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뎧
      475 GlnProHisArgHisProLeuLeu-
                                                                                                           987
                                                                                                                          435 GlnGluAlaValArgGlnArgGlnProAspArgProLeuHisProHisArgGluArgAla
                                                                            455
                                                                                                                                                                         969
                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                      403
                                                                                                                                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                                                                    864
                                                                                                                                                                                                                                                                                                                                                  804 GCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCA 863
                                                                                                                                                                                                                                                                                                                                                                                                  373
                                                                                                                                                                                                                                                                                                                                                                                                                744 CCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCA 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             684 CTACGCCACCACATGCGCGACGAAGGCGAGCACCATCGTGGCCGCCGCTGGAGGAAACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       353 AspGlyHisArgGlnGln--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              333 GlyArgValArgLeuGluHisHisLeuSerGlnArgLeuLeuAlaGluProAlaArgAla 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           573 GGCCAG----CGGCGCCATCGGCATTTCGACCGGCGCCTTCTA------CCCGCCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           313 LeuGlyGlyHisAlaArgArgArgArgGlyGlnGlnAlaProGlyAspGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293. AspValAspGlnSerValProHisArgAlaAspProAlaArgAspHisHisArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273 ArgThrLeuGlyGlyLeuAlaArgArgThrAlaGlyGlyGlyAlaArgArgLeuAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     253 ArgArgArgAlaProProAlaGlyArgArgSerGlnProAlaProArgArgGlyGlnGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        224 ArgProArgGlnAla--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           172 ArgProArgAlaAspGluArgArgProTyrHisPro---ArgArgArgThrHisArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132
                          GCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGC 1106
                                                           ValProGlyH1sArgArgAlaArgArgGluArgLeuGlnLeuArgArgGlnGlyCysArg 474
                                                                                           CGACCTGGATGAAGTCGCGGCCGAGCGGGCAAATCCAAGTACGACGTGGTGCCCGAGCT 1046
                                                                                                                                                                                        -----ArgAlaArgArgArgArgHisHisGlyArgGlyAspArgLeuGlnGlyAla 434
                                                                                                                                                                                                                       GGACCGCGTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTT-----
                                                                                                                                                                                                                                                         GlyAsnProGlnLeuAlaGlyGly------ArgGlyGlnLeuLeuHis------
                                                                                                                                                                                                                                                                                     GGA-----CGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA 917
                                                                                                                                                                                                                                                                                                                   ------ArgArgArgArgArgHisArgHisProAlaProGlyGluGlu 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGCGCGCCACCGACGAGGAAATCGCGGCCATGCGGGAACCTGGCCGAGGAAGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACTACCTGGACGCGTTGCGGGCCAC---GCCGGCGGCCGTCAACGCCGCCTGTATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCGCCCCCTGGACCTGCTGGACGAAGG----CGGCTCTTACCGTTTCGAGCGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaargargaspargGlnargGlnargGlnargargalaProGlyAlaThrGluarg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProArgGlyAspProAsp-------His-----ProArgProArgArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGT 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGACGTGTCGGGCCTGGTCGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCGGCGACCGCCATCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCGGGT 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CCCCGAACTGAGCGGGCG
--ArgCysGlnHisProPro 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------HisHisArgGly
```

454

968 416 743 358 683

623 332 572 312 512 473

272 416 252

232

223 251 210

FILE OF INVENTION: AERGGINOSA FOR DIAGNOSTICS AND THERAPEUTICS: 117156.136 CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18 PRIOR APPLICATION NUMBER: US 60/094,190 PRIOR FILING DATE: 1998-07-27 NUMBER OF SEQ ID NOS: 33142 SEQ ID NO 29274 LENGTH: 801 TYPE: PRT ORGANISM: Pseudomonas aeruginosa US-09-252-991A-29274 Alignment Scores: 1.4e-15 Pred. No.: Score: 1.4e-15 Length: 801 Pred. No.: 801 Pred. No.: 1998-07-27 Alignment Scores: 1.4e-15 Pred. No.: 222		QY 1431 AGAGCAGGCGTTCACCGGCCAGCATGCCGCGCGCGCGCGC	Qy 1107 GTTCGGCCCGACCATGATCGGCTCCGACGGCCGCACGACGACGACGACGACGACCGCCTCCGCG 1166
·	ŇAS		
QY 624 CCGCGCCACCGAAGAGATCATCGAGGTGTGCCGGCCGATGGCGGCAT 683               ::::			GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

S

1143 GCACCACGACGCCCC  1159	### 391 ArgGlyGlyLeuArgLeuTyrValLeuGlnArgHisValArgArgProArgProGlyAsp 410 ### 10 CCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAA 914 ### 11 ProAlaGlyAspArgArgAlaArgProValArgHisArgGlyAlaLeuArgGlnProGln 430 ### 30 915 GCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCATCACCTGGTGCAAGCCCTTCCC 971 ### 11
	Oy 1683 GCAGGCCAGCGGCATCGCGGTTCCAAGGCCGA 1724

õ

밁 Š В S

Ş 문

	118		1184	Ž
	lnProArg 547	roArgValProArgGlyArgArgAlaProLeuGlyIleArgProArgArgG	U	ŏ
	1184		ົດ	. 3
	erProPro 527	<u> </u>	508	ŏ
	1160	GCGCCCGCA	1152	₹
-	CGACGA 1151        spargarg 507	CTGCCGCA	488	8 3
	roGlyArg 487	GlyThrValGluAspArgProGluAlaArgArgThrAlaArgGlyAsp	4 6	íĕ
	CGACCAT 11	GAACCCGACGTGCAGCG	1062	¥
,_	AGCCGGCCGGCGC 106	CGCGGCCGAGCGGGCAAATCCAAGTACGACGTGGTGGTGCCGAGCTGCAGCCGGCCG	451	8 5
	4		440	, B
-	_	CACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTG	942	Ą
		LeuArgArgArgProGlnProAlaTh	422	문
	900		909	Ş
	rqThr	   ProProGlyAlaSerGlyLeuArgArgArgArgGlyAs	0	문
		CTCGCTGGACG	870	Ş
	TOATGGIN 401		ω	8
	מ בניטלע	CCGCTC	816	Ş
	aAsp 3	יכר	362	밁
	TCGG B	CGAGCTGGACGTGCCGGTGGTGATCTCGCAC	756	Š
	ш. ·	ArgargThrH1sArgProTrp	ίω.	밁
	cecce	AGGCGAGCATCGTGGCCGC-	708	5
	AlaAla 3	LeuProAlaAlaAspArgHisGlyAlaAlaLeuGlyProG	325	밁
	CGACGA 7	SCCGGCCGCTGAGC	64	Š
	ω	1 CysHisArgGlyProProLeuArgArgGlyArgArgSerArg	311	밁
	AGATCAT 6	TTTCGACCGGCGCCTTCTACCCGCCCGCCGCC	58	δ
	iocesceccai 58/      rAlaArgAla 310	OArgArgArgGlyProSerAlaAlaAlaAlaAlaGlyThrGlyGlyT}	. 29	밁
	, m	CGAGGAAGCCATGCCC	7 56:	Ş
	euAlaAsp 29		27	B
	, , , , , , , , , , , , , , , , , , ,	4GGAAATCGCGGCCATGCGGGACCTGGC-	53	δō
_	rProPro 27	1 ArgArgValSerSerArgArgGlyTrpProLeuLeuLeuProGlyA	25	g
ω		8 CGACGA	52	8
-	\           \   gargH1s 25	9	23	밁
J (	CCCC 20 50	8 TATGGTGGGCCATTCAACGCTGCGC	46	8
<b>20</b>		  3 GlyAlaArgCysArgProAlaSerArgHisGlyArgGlyGlyGlyGlu	22	당

	ING DATE: 1998-07-27 SEQ ID NOS: 33142 16789 774 RT RT Seudomonas aerugir	PRIOR FILIT NUMBER OF SEQ ID NO 16 SEQ ID NO 16 TENGTH: 77 TYPE: PRT ORGANISM:	······································
	CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR FILING DATE: 1998-02-18 PRIOR APPLICATION NUMBER: US 60/094,190	CURRENT CURRENT PRIOR F PRIOR F PRIOR F	
NG TO PSEUDOMONAS	ANT: MARC J. Rubenfield et al.  PE INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING DE INVENTION: AEROGINOSA FOR DIAGNOSTICS AND THERAPEUTICS SPERENCE: 107196-136	APPLICANT: TITLE OF II TITLE OF II FILE REFERI	· •• •• •• ••
	RESULT 15 US-09-252-991A-16789 ; GENERAL THYOPMATTON:	RESULT 15 US-09-252- ; Sequence ; GENERAL	RES US-
	:::      lnArgProHisProGlnProValAlaAlaAspGlnPro	794	, B
gG 794	CTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCCC 1741	1704	ρ, ¦
	GACCCTGCAAGACCTGTCGCAG	1665	γ . γ
	ProProGlyArgGlyGlyGluAlaGlyAlaGlnAlaLeuArgProAspValProAspGln	755	DB Db
AT 1664		1608	Qy
sp 754		735	ָ סל
	Thrargargalaarg	722 1569	γ Q Q
AT 1568	ATCCGGCGTGAACGGGG	1509	i S
la 721	LeuGlnArgArgArgGlyArgGlyArgArgArgProGlyProAlaAlaAla	704	<b>D</b>
		1449	Ω
	CGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAAGCCGTTCACCGG	1389	8 8
683	HisHisArgArgGlnProArgHisArgProGlyAspSerProA		D D
μ.		1359	Qγ
		644	שמ
	GGTGGCCGATACCGC	1344	Qy
		628	DЬ
		1284	Qy
Ala 627	SerArgArgArgGlyProProA		מַ
		12	Qγ
	CUTGGCCTGTTCCCGCTGAGAACGGCGGTATGGAAGAT	588	B &
Arg 587			} }
CGA 1211	-	118	ΨQ
Ala 567	8 ThrGlyArgGlyHisProArgArgArgGlnArgProGlyArgArgGlnPheArgHisAla	548	Db

Qy 783 794	QY 747 CATCGGCCGCGAGCTGGACGT	287 A	roAlaGlyIleAsp 28	GCCGGCCGCTGAGCGCGATGGCGGCATCTACGC	Db 253 H15ArgLeuProHisH1sH1sAspGlnArgProArgAraAlary	233 HisGlyLeuAspG]	CONTRACTOR OLD ALTER AND SERVICE AND AND AND AND AND AND AND AND AND AND	213 GlnArgGlyThrAlaGlyHigArgHigLeuProProllyGlancolity		euArgThrGluA	Db 157AlagluaspGlnProAlaValAlaGlvGlvProClvuGar	142	Ú	112 AlaGinGlyAlaProPheArgProArgAspProValProProGlyAlaSerProAspAla		123 CCTGGGCGTGCGCGGCGACCGATCGCTATCGCCCCTTTTTTTT	Db 72 ProAspProGlyArgGerArgGlalaalaasargaran	58 GlyArgGlnAspLeuProLeuLeuGlnProProGlySerArg	18 GGAAGGAGAGATTTCCATGTCCCAATCCG	US-10-009-782-1 (1-1758) x US-09-252-991A-16789 (1-774)	Pred. No.: 4.81e-15 Pred. No.: 4.81e-15 Length: 774 Score: 413.50 Matches: 223 Percent Similarity: 33.088 Best Local Similarity: 28.708 Query Match: 12.538 DB: 16 Gaps: 41	
									 		 		 · 									

Db   327 ArgArgValleuArgArgArgArgProdlyArgProdlydlyProArgHisHisArg 316   09   795
795CATGGG
7 ArgArgValleuNrgArgArgProolyArgProAlAProolyGlyProArgHisHisArg 5CATGGG
Arg g G G G G G G G G G G G G G G G G G G
Arg 66 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

658 GlyAspProGluGlyArgHisArgAspValProGlnGlyValArgArgGlyLeuArgArg 677 1512 CGGCGTĠAACGGGGCGGCGCGCCCCCCCCCCCCCCCCCCC

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM nucleic -
                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
         296.5
289.5
                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -YGAPOP-10 -YGAPEXT-0.5 -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapop 10.0 , 1
Ygapop 10.0 , 1
Ygapop 6.0 , I
Fgapop 6.0 , I
Delop 6.0 , I
                                                                                                      Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-009-782-1
3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             May 11, 2003, 12:16:00; Search time 55.5 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               349150 seqs, 92025710 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn2_6/ptodata/2/pubpaa/US0
/cgn2_6/ptodata/2/pubpaa/PCT
                                                                                                                                                                                                                                                                 /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US60_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US60_PUBCOMB.pep:*
                                                                                                    Length DB
                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/2/pubpaa/US10_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                     /ptodata/2/pubpaa/US06_PUBCOMB.pep:*/ptodata/2/pubpaa/US07_NEW_PUB.pep:*/ptodata/2/pubpaa/US07_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                ptodata/2/pubpaa/US08_PUBCOMB.pep:*
ptodata/2/pubpaa/US09_NEW_PUB.pep:*
   10 US-09-770-517C-2
9 US-09-975-719-277
10 US-09-801-368-108
9 US-10-025-380-1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                       /pubpaa/PCTUS_PUBCOMB.pep: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /pubpaa/US06_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (without alignments)
5829.953 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           698300
Sequence 2, Appli
Sequence 277, App
Sequence 108, App
Sequence 1068, Ap
                                                                                              Description
```

000

	•								•					
444	2210	9 8 9	1 0 0 4 7 0 0 4	 		226	224	22	19	16	14 14 15	12	2001	νώ
· · N	225 225 23.5			37.			58.	388	855	855	385	855	2000	8 8
			177. 0 W D .				7.9		8.7	8.7			8.777	
ω un κ		4 40	2796	11876			10 10 0	44:	ω ω <u>u</u>		. w w	SHO		
999	9 10 9	•	2 N K	, 0	φφα	9	ωων	12	12	122	112	12	1212	10
09-893-519A-1 09-975-719-27 09-945-901-58	S-09-854-133-1 US-09-738-973- S-10-121-988-1	09-764-868-85	023-529-4 023-523-4 70-759-11	10-231-581-44 -09-866-562-6 09-976-740-47	-10-176-847-56 -10-233-885-44	US-09-854-133-1 US-09-738-973-	-060-036-15 -996-069-10 -870-759-11	US-10-124-557-2	10-124-557-4 10-124-557-4 10-124-557-5	S-10-124-557- S-10-124-557-	S-10-124-557-4 S-10-124-557-1	-10-124-557-5 -10-124-557-1 -10-124-557-4	S-10-124-557-14 S-10-124-557-84 S-10-124-557-84	S-09-922-217-
uence 14, App uence 277, Ap uence 58, App	sequence 187, Sequence 187, equence 143,	35	e 47, e 47, 114,	quence 44, equence 61, quence 47,	equence 351, equence 56, A equence 44, A	equence 187 Sequence 18	9 4	Sequence 2, Sequence 62,	equence 4 equence 4 equence 5	000	equence 142,	ce 58, ;	ce 1068, A ce 14, App ce 84, App ce 74, App	e 1068,

## ALIGNMENTS

RESULT 1 US-09-770-517C-2

Sequence 2, Application US/09770517C Patent No. US20020151035A1 GENERAL INFORMATION:

Al Pr	us;		٠.	٠.	••	••	٠.	٠.	٠.	٠.	٠.	٠.	٠.	٠.	٠.	٠.	٠.
Alignment Scores: Pred. No.: Score:	; ORGANISM: Hypor US-09-770-517C-2	TYPE: PRT	SEQ ID NO 2	SOFTWARE: PatentIn Ver. 2.0	NUMBER OF SEQ ID NOS: 27	PRIOR FILING DATE: 2000-05-22	PRIOR APPLICATION	PRIOR FILING DATE: 2000-01-27	PRIOR APPLICATI	CURRENT FILING	CURRENT APPLICA	FILE REFERENCE: 06501-072001	TITLE OF INVENT	APPLICANT: Tok	APPLICANT: Mat	APPLICANT: Yam	APPLICANT: Mits
2.4e-20 612.00	ORGANISM: Hypomyces mycophilus 9-770-517C-2	•		tIn Ver. 2.0	D NOS: 27	TE: 2000-05-22	PRIOR APPLICATION NUMBER: JP 2000-150578	TE: 2000-01-27	PRIOR APPLICATION NUMBER: JP 2000-019080	CURRENT FILING DATE: 2001-01-26	CURRENT APPLICATION NUMBER: US/09/770,517C	06501-072001	TITLE OF INVENTION: D-AMINOACYLASE AND GENE ENCODING THE SAME	Tokuyama, Shinji	Matsuyama, Akinobu	Yamamoto, Hiroaki	Mitsuhashi, Kazuya
Length: Matches:							150578		080610		770,517C		AND GENE				
558 171													ENCODING				
H &									-				THE				
	•												SAME		•		

Score: 310.00	_			
ment Scores:	-10	AAGCAGGACCGCGTGCTGCTGCCC 936	Оу 913	
US-09-975-719-277		aAlaLeuLeuProSerTrpAlaSerAlaGlyGly	Db 304	
TYPE: PRI		:	Оу 889	
; NUMBER OF SEQ ID NOS: 437 ; SOFTWARE: FastSEQ for Window ; SEQ ID NO 277	·.	CTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCC 888 ::: ::::::: ::::	Qy . 832 Db 284	
		IleHisLeuThrHisAlaThrLeuAsnPheSerGluAsnLysGlyLysAlaProValLeu 283	264	
; CURRENT APPLICATION NUMBER: 09 ; CURRENT FILING DATE: 2001-:			Db 244 Ov 772	
; TITLE OF INVENTION: SEQUENCE: 00786/36100:				
APPLICANT APPLICANT		AlaAlaLeuAlaGlnGluPheProGlyAlaPheTyrAlaProHisHisArgSerTyrGly 243	Db 224	
US-09-975-719-277  Sequence 277, Application US, Publication NO. US2003002234		:::		
Db 544 ThrLeuArgArgSer 548 RESULT 2		IleGlnAspGlnIleGlnLeuLeuArgGluAlathaladlnGllHl:::  :::  :::   ACCGGCGCCCTTTCTBCCCCCCCCCCCCCCCCCCCCCCCC	Db · 184 Ov . 598	
Qy 1465 GTGCTCGCACGCACG 1479	•	ATCGCGGCCATGCGGGAACCCAGGAAGCCATGGCCAGC	ΩΥ 538	
			Db 164	
Qy 1405 TACGTCAACGGCGCGCGGT	,	CATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCCGCCGCCGACCGA	Qy 478	
Db 504 VallysaspMetSerThrTy		GACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGC 477	Db 144	
484				
QY 1285 GGGCGGGGCAGCTGCAGGC	·	GACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCC	Оу 373	
464			•	
Qy 1228 CTGGAGACGGCGGTATGGAA		CACGCCAACCCG	Оу 349	
OY 1108 CTGTGGGGCACCTTCCCGGG :::          Db 444 AlaTyrGlyThrPheThrAr		TCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCTGGCG 348	Оу 289 Db 84	
424	•		Db 64	
QY 1108 TTCGGCCCGACCATGATCGC	-		ОУ 229	
Db 404 LeuAlaThrSerCysIleMe		AlaThrProAspThrArgHisLeuAspValThrGlyTyrIleLeuSerProGlyPheIle	Db 44	
Qy 1048 CAGCCGGCCGGCGCCATCTA		GCCGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCCGGCTTCATC	Qy 172	
Db 384 AlaGinSerValGlyLysPr		:::     AlaaspvalLeuvalSerLysGlyLeuIleAlaLysIleGlyAsnProGlySerIleAsn	Db 24	
Qy 1003 GCGGCCGAGCGCGGCAAATC		GCCGACCTGGGCGTGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGAC	Qy 118	
Db 364 IleGlyThrThrAsnGluPr	•	::::::	Db 4	
ОУ 964		GCAGCAACACCCCGGGGGGGGGCGC	0у 61	
Db 344 ValGluIleLysGlyCysAs		)9-770-517C-2 (1-558)	as-10-009	
		tch: 18.55% Indels: 72 10 Gaps: 13	Query Match: DB:	
Db 324 ProGlnGluThrLeuLysAı		45.32% Conservative:	Percent S	
324 1	<u></u>	45.32% Conservative:	imilarity:	Percent Similarity: Best Local Similarity:

•	•																	
Align Pred. Score	RESULT Seque Publi GENERAL APPE APPE APPE APPE APPE APPE APPE AP	B 2	P 5	8 B	5 B	Ωy	라 24 ·	DЬ	δ E	ş 29	. 말	φ	gg dg	₽,	Qy	Б	Q.	밁
ment No.:	ZAEGUSERRRRRE BEITAGEZ	544	524	504	484 1345	1285	1228	44	1168	1108	404	1048	384	364	964	344	937	.324
Scores: 6.66e-07 Length: 558 310.00 Matches: 182	S-719-277  action No. US20030022349A1 LINFORMATION: CANT: Ausubel, Frederick M. CANT: Rahme, Laurence G. OF INVENTION: VIRULENCE-ASSOCIATED NUCLEIC ACID OF INVENTION: SEQUENCES AND USES THEREOF REFERENCE: 00786/361003 NT APPLICATION NUMBER: US/09/975,719 NT APPLICATION NUMBER: US/09/975,719 APPLICATION NUMBER: US/09/975,719 FILING DATE: 2001-10-10 APPLICATION NUMBER: US 60/199,637 FILING DATE: 1998-11-25 APPLICATION NUMBER: US 60/066,517 FILING DATE: 1997-11-25 APPLICATION NUMBER: US 60/066,517 FILING DATE: 1997-11-25 APPLICATION NUMBER: US 60/066,517 FILING DATE: 1997-11-25 APPLICATION NUMBER: US 60/066,517 FILING DATE: 1998-11-25 APPLICATION NUMBER: US 60/066,517	GTCCTCGCACGCACG 1479            :: ThrLeuArgArgSer 548	LeuValAsnGlyGln1		TyrArgGlyLeuileAlaGluGlySerAlaAlaAspIleValValPheAsnProGluThr GTGGCCGATACCGCCACCTTCGAACACCTTACGAGCGCGAGCGCGCGGGGGGGG		CTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCC		HISATGVALHISMETALAGLYSerAspGlyIleLeuH1SGlyGlnThrLeuH1SProArg			CAGC	3 GCGGCCGAGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTG	IleGlyThrThrAsnGluPro		ValGluIleLysGlyCysAspGlyGlyHisGlyIleProThrAsnTrpAspGluIleG		4 ProGlnGluThrLeuLysArgLeuGluAspAlaGluSerArgGluLysIleArgIleAla
			1464 543	523	503	1344	1284	463	443	1167	423	1107	1047	383	1002	363	963	343

CTGCTGCTGCGGGGCGCACCCTCATCGACGGCAGCAGCAACACCCC 107
--

		<u> </u>				\ -		· ·											
RESULT US-09-4 Pates Pates GENES APPS APPS APPS APPS APPS APPS APPS AP	B 5	B	Qγ	дь Су	Б	o B	ΩΥ	유 양	g	70	δ. <sup>2</sup>	망	å å	Qy.	B 1	₽ ₽	Ϋ́	문 :	Ş
SULT 3 -09-801-368-108 Sequence 108, A Patent No. US20 GENERAL INFORMA APPLICANT: Bus APPLICANT: He APPLICANT: He APPLICANT: MA APPLICANT: MA APPLICANT: MA APPLICANT: NO APPLICANT: NO APPLICANT: NO APPLICANT: Sh APPLICANT: SSA APPLICANT: SSA	1574 523	518	1514	1454 510	494	476 1395	1350	1299	442	1245	1185	412	392 1125	1104	372	352	999	340	939
MANANANANAN 10 108		:																	
-368-108 a 108, Application No. US20020128250A1 INFORMATION: ANT: Busby, Robert ANT: Call, Brian ANT: Hecht, Peter ANT: Hecht, Peter ANT: Madden, Kevin ANT: Madden, Kevin ANT: Mazon, Mary ANT: Milne, Todd ANT: No. US2002012 ANT: Royer, John ANT: Shalama, Sofie ANT: Shalama, Sofie ANT: Shalama, Jeff	CTCCCTCCGCTCGCAATACGGCCCCACCGATATCGTGGGCAAGGAAG        	·Vа	GCGTGAACGGGGCGCGCGCCCCCCCCCCAACCCTGGACGCAAACCGCTACATGGCCC	ATGCCGGCCGCGTGCTCGCACGCACGCACGCCCTGAGCCCTGAGCCCGGCGCCAGCCCTTACAATCCG		ArgGlnIleArgAlaGlyCysGlnTyrLeuGlyGluGlyGlyArgArgArgArgAsp	CGATACCGCCACCTTCGAACACCCTACCGA	GCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCC		JDSQTOJDSDTTTDDDDDDDDDDDDDDDDDDDDDDAGAG	GCGGGTGCTGGGGCACTATGCGCGCGCAATAGGCCGTATGGCGCTATGGCGCTATGGCGCTATGGCGCTGTATGGCGCTGGAGACACGGCGGTATGGCGCTGTATGGCGCTGTATGGCGCTGTATGGCGCTGTATGGCGCTATGGCGCTATGGCGCTATGGCGCTATGGCGCTATGGCGCTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCTATGGCGCTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCGTATGGCGCTGTATGGCGCGCTATGGCGCGCTATGGCGCGCGTATGGCGCGCGTATGGCGCGCTATGGAGAGAGGGGCGGTATGGCGCGTATGGCGCGTATGGAGAGAGGGGCGAATGGCGCGCTATGGAGAGAGGGCGCGAATGGAGAGAGGGGCGGAGAGAGGGGGCGAATGGAGAGAGGGGCGGAGAGAGGGGCGGAGAGAGGGGGCGAATGGAGAGAGGGGCGAATGGAGAGAGGGGGAGAGAGGGGGGGG		GlyIleHisGlnProAspArgArgSerGlyGlyValArgAlaAlaGlySerArgAlaAsp	GGCGTT		ProGinHisArgGlyGlyAspAspLeuGlnProArgPheGlyAlaAspProGlyAlaGly	AGTCGCGGCCGAGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGC		SACC.
Applicat Applicat Applicat MATION: MATION: MUSDY, Rob Cali, Bri Cali, Bri Hecht, Pe Holtzner, Madden, K Maxon, Ma Mine, 70 No. US200 Royer, Jo Salama, S Sherman, Sherman, Je	GCTC	1G1y	9999	aG1y	gLeu 	gGln	CAC	3G	G1n	9555	- CI - G	lsArg	iscin Sacco	::: 992	roArg	isarg	<b>1</b> 9008		ATCAI
plication US/0980130 20128250A1 20128250A1 20128250A1 1, Brian 1, Brian 1, Peter Ctman, Doug den, Kevin 20120000000000000000000000000000000000	GCAAT Valgi	ValGlyAlaArgAla-	cecc	GGCCGCGTGCTCGCACGCACGGCCGCCCC	Thrser	-ArgGlnIleArgAlaGlyCysGlnTyrLeuGlyGluGlyGlyArgArgArgAsp CCGTGT-ACGTCAACGGCGCGCGCGGGTCTGGGGAAGAGGAGGGGGGGG	CTTCG	AlaLe	:::	CCTG	TGGGGCACTATGCGCGCGGACGACGCGGCCTGTTCCCGCTGGAGACGGCGG	ArgA	CCTG	-CGGCCCGACCAT-	GlyA	)GL yG	G		SACC
ug n n 2825(	ACGG	gAla	Tecc	GCAC	H —	gala gala	BAACA	PACTT	II врсуз	ACCGC	PATGO	spPro	epArg	ACCAT	laThi	lyası	cccc		いしいいし
US/09801368	Prop)		eccc	GCACC		GLYC;	CCCT	Arge:	-    Arga	9595	2 - 60 - 60 - 60 - 60 - 60 - 60 - 60 - 60	AlaA	Args		CysA	AspL	CAAA		ממכו
21	лесуя,		CICC	CGGCCG        ArgPro		79G1n	ADDD.	-GTACTTCGCCGACCTGGTGGTGTTCGA- :::         aLeuAspArgGluProAlaGlyAlaThrA	rgLeu	CGCTI	GACCI	ArgSerProAla	ergly		Chicker   CalenterCounce	LeuGl	TCCA	3.	3
Thea	ATATO		CAACO	CCTG		TyrL		Alac		CGGC	666	ProA	AATD.		CAspG	1ProA	AGTAC	AspArgGlnSerArgAlaTyrGlyGlyLeu	2
	CGTGG		CTGG		lyala	encly		STGTI   J .   YAla	Log17	CIGGO	CTGT	laGlr	alArg		AspGlyArg	ArgPh	GACG	rgG1	322
	GCAAC :: LysLy		ACGC	GGCGG	Aspa	GluG		CGA-	LeuT	ProG	- CCG	AlaPro	ALLA		adece Galya	GlyAla	regre	SerA	ころいつ
	AGGAAG :::    LysLys		AACC	CAGO	rgG1v	lyGly	600	spPrc	rpArg	CG( TPAT	CIGG	0-	laGl		incy	laAs	CCCG	 	2
	1621 538	:	GCTA	CCTT	SerP	Arga	2000	Ğİy-	Thre	/Alag	GACG		Ser		IGCAC	pProc	AGCTO	eCGA( [ eTyr(	3
•	_		CATGG	ACAAT	roAle	ArgArgArg	- есесессессест	ACGG	roAla	GIYALAGIY CGGGCGCGGCAGCT	. – ece		rgA1		euPr	SlyAl	CAGO	1 ye1	į
														- GA	oSer	aGly	CGC	ATGA    -	,
		522	1573	1513 517	509	493	1394	1349 475	458	1298	1244	426	411	1124	391	371	1055	351	)
	•	•																	
											•								

```
밁
                                    Ş
                                                                문
                                                                                     Ş
                                                                                                                  문
                                                                                                                                          S
                                                                                                                                                                                             Ş
                                                                                                                                                                     밁
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-009-782-1 (1-1758) x US-09-801-368-108 (1-1367)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 109272.147
CURRENT APPLICATION NUMBER: US/09/801,368
CURRENT FILING DATE: 2001-03-07
PRIOR APPLICATION NUMBER: US 09/487,558
PRIOR FILING DATE: 2000-01-19
PRIOR APPLICATION NUMBER: US 60/160,587
PRIOR FILING DATE: 1999-10-20
NUMBER OF SEQ ID NOS: 440
SOPTWARE: PATENTIN VERSION 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JS-09-801-368-108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 108
LENGTH: 1367
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Saccharomyces
           534
                                                                                       581
                                                                                                                  511
                                                                                                                                                                    491
                                                                                                                                                                                               461
                                                                                                                                                                                                                        471
                                                                                                                                                                                                                                                 413
                                                                                                                                                                                                                                                                           457
                                                                                                                                                                                                                                                                                                                               437
                                                                                                                                                                                                                                                                                                      353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ĕ
                                                                                                                                                                                                                                                                                                                                                           293
                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                              239
                                                                                                                                                                                                                                                                                                                                                                                                                                       399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 ACTIGATCGCGGAAGGAGAGTTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGC
           ThrThrGlu--
                                                                           AGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACACATGC
                                                  ---ProSerSerSerThrThrGluSerSerSerAlaProAlaProThrProSerSerSer
                                                                                                                             CCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCG
                                                                                                              ProValProThr -----
                                                                                                                                                         SerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSerSerSerAla
                                                                                                                                                                                  CCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGGGTCATGCCGGACTTGCAGCGCG
                                                                                                                                                                                                           {\tt AlaProValThrSerSerThrThrGluSerSerSerAlaProValProThrProSerSer}
                                                                                                                                                                                                                                      TOGCCG------ACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACG
                                                                                                                                                                                                                                                               ProvalProthrPro-------SerSerSerThrThrGluSerSerSer
                                                                                                                                                                                                                                                                                        CCAACCCGCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCT
                                                                                                                                                                                                                                                                                                                    SerThrThrGluSerSerSerAlaProValThrSerSerThrThrGluSerSerSerAla
                                                                                                                                                                                                                                                                                                                                              AGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACG
                                                                                                                                                                                                                                                                                                                                                                         SerAlaProValThrSerSerThrThrGluSerSerSerAla-----ProValThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluSerSerSerAlaProValThrSerSerThrThrGluSerSerSerAlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGTCGACGTGTCGGGGTGGTCGCGCCCGGCTTCATCGACTCGCACA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValThrSerSerThrThrGluSerSerAla------ProValProThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGTGCGCGGCGATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCC
                                                                                                                                                                                                                                                                                                                                                                                                -----CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.44e-06
296.50
38.72%
25.50%
8.99%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
SerSerSerAlaProValThrSer 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1367
139
72
266
68
                                                                            640
                                                                                                                                580
                                                                                                     514
                                                                                                                                                         510
                                                                                                                                                                                                              490
                                                                                                                                                                                                                                      460
                                                                                                                                                                                                                                                                                         412
                                                                                                                                                                                                                                                                                                                                                352
                                                                                                                                                                                                                                                                 470
                                                                                                                                                                                                                                                                                                                     456
                                                                                                                                                                                                                                                                                                                                                                                                   292
                                                                                                                                                                                                                                                                                                                                                                                                                           418
                                                                                                                                                                                                                                                                                                                                                                                                                                                     238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
```

```
RESULT 4
US-10-025-380-1068
US-10-025-380-1068, Application US/10025380
Publication No. US20020182191A1
                                                                                                                                                               멼
                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                         1571 CCCCTCCCT 1579
                                                                                                                                                                                                                                                                  1451
                                                                                                                                                                                                                                                                                                                                    1391
                                                                                                                                                                                                                                                                                                                                                                                          1331 TCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1271
                                                                                             838
                                                                                                                                                             818
                                                                                                                                                                                                                                799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1151 AGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCGCG 1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1037
                                                                                                                                                                                                                                                                                                    779
                                                                                                                                                                                                                                                                                                                                                                        760
                                                                                                                                                                                                                                                                                                                                                                                                                                         740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   977.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                701 GCGACGAAGGCGACACATCGTGGCCGCGCTGGAGGAAACCTTCCGCCATCGGCCGCGAGC
                                                                                         ProValPro
                                                                                                                                                 IleThrSerSerAlaProSerSerThrProPheSerSerSerThrGluSerSerSerVal 837
                                                                                                                                                                                 CCGGCGTGAACGGGGCGCGCGCGCCCCCTCCCAACCCTGGACGCAAACCGGCTACATGG
                                                                                                                                                                                                                     SerSerThrThrGluSerSerValAlaProValProThrProSerSerSerSer---Asn
                                                                                                                                                                                                                                                   AGCATGCCGGCCGCGTGCTCGCACGCACGGCCCTGAGCCCCGGCGCCCAGCCCTTACAAT
                                                                                                                                                                                                                                                                                                                    GCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCC 1450
                                                                                                                                                                                                                                                                                     ValProThrProSerSerSerThrThrGluSerSerSerAlaProValProThrProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTTCGGCCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aProValProThrProSerSerSerThrThrGluSerSerSerAlaPro--ValProThr
                                                                                                                                                                                                                                                                                                                                                          SerSerAlaPro---ValProThrProSerSerSerThrThrGluSerSerSerAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                            {\tt ProSerSerShrThrGluSerSerSerAlaProValThrSerSerThrThrGluSer}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluSer-SerSerAlaProValProThrProSerSerSerThrThrGluSerSerSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCATCCTGGCGTTCGGCC-----CGACCATGATCGGCTCCGACGGCCTGCCGCACGACG 1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              {\tt AlaProValThrSerSerThrThrGluSerSerSerAlaProValThrSerSerThrThr}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrGluSerSerAlaProValProThrProSerSerSerThrThrGluSerSerSer 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCCCGAGCTGCAGCCGGCGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    {\tt ProSerSerShrThrGluSerSerSerAlaProValProThrProSerSerShr}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGGCAAATCCAAGTACGACGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerSerSerAlaProValThrSerSerThrThrGluSerSerSerAlaProValProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluSerSerSerAlaProAlaProThrProSerSerSerThrThr------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerSerShrThrGluSerSerSerAlaProValProThrProSerSerSerThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCGCGAGACGCTGCCGGTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerSerThrProValThrSerSerThrThrGluSerSerSerAlaProValProThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCCAGCCCAATTTCGGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerThrThrGluSerSerSerAlaProValProThrProSerSerSerThrThrGluSer\\
                                                                                         840
                                                                                                                                                                                                                       817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               700
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1270
                                                                                                                                                                                                                                                                                       798
                                                                                                                                                                                                                                                                                                                                                                                                                              759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  760
```

GENERAL INFORMATION:
APPLICANT: Xu, Jiangchun
APPLICANT: Lodes, Michae

APPLICANT:

Lodes, Michael J Secrist, Heather

Darin R

Qy	D 09	. pp 04	Db D	D 04	Db :		•	. B. 8	Db Oy	US-10	Alignmen Pred. No Score: Percent Best Loc Query Ma DB:	US-100011111
542 CG	482 CAA 1490	422 ACC     1474 Thr	362	302 CC    1456 Pr	242 AC 1449 Le				20 AJ 1383 LJ	-009-7	ent s No.: t sim ocal Match	
GCCATGC	ACGCTGCGC	CTGGACG	GCCCCCCTGGACC	CACGGTGC	ACGACGACA      LeuProThr	ccce ThrT	ACCTGGGCG	ACCTGCTGCT     ThrThrThr1	AAGGAGAGATTTCCATGTCCCAATCCGATT- 	82-1 (1	ores: larity imilar	THE LOUNCE DE NA
GGGACCT	່ ຄ	ACGCGTTGCC	TGGACCT	TGGTCACGGG	ACTACC        hrThr	Pro	3TGCGCG	CTCGCGG rProSer	ATTTCCA   gValAsn	-1758)	ity:	Meagher, Made Stolk, John A Wang, Tongton Jiang, Yugiu Smith, Carole King, Gardon Wang, Ajun Clapper, Jona Scarter, Darzi Fanger, Gary Vedvick Thoma Carter, Darzi ENTION: OF CI GE: 210121.47. LCATION NUMBE: ING DATE: 200. 30 ID NOS: 112: 18tSEQ for Wing 19
GGCCGAC	GGTCAT	GGCCAC	rectega	3CAATTG	recreas	TGTCGGG	GCGACCG	GCGGCAC   ProProF	TGTCCC!     CysCysT	x US-10-	4.4e-06 289.50 32.92% 25.70% 8.78%	John A. John A. Carole L. Gordon E. Jun Jonathan I Yasir A. W Gary R. Thomas S. Darrick COMPOUNDS I OF COLON (
GEAAGCC 	GCCGGAC	3CCGGCG hrThrTh	CGAAGGC	CGGCATC	GCGTCGC	CCTGGTG	CATCGCC       roserP	CCTCATO	ATCCGAT	025-3	٠.	irs O/ NC
CGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCATGGGCGCCATCGGCATTTCGACCG	CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATC	ACCTGGACGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCAT	CCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGAC	CCACGGTGGTCACGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGGCCAACCCG	GACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTC	GGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCC        ;::::	FGCGCGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCCGCGCGCG	CTGCTCGCGGGCGGCACCCTCATCGACGGCAGCAACACCCCGGGGGGGG	ATTTCCATGTCCCAATCCGATTCCC 	80-1068	Length: Matches: Conservativ Mismatches: Indels: Gaps:	AUDO7 AND 5,380
eceece	GCGCCGC	ACGCCG	ACCGTT	3090090	ACGCCCA	TCGCGCCCGGCTTCATCGACT	GGCGATO : rThrThr	AGCAACA rThrLeu	sCysIle	(1-517	rvative:	to .
CATCGG	CCACCGAC	CCTGTAT	TCGAGCGCT	TGGCGCA    T	AGATCTO	TCATCGATE CONTROL TARTAL	ThrThr	Pro	Thrihr	9)	5179 146 : 41 164 217	AND DIA
CATTTCG	CGAGGAAATCG    hrThrThrPro	GGTGGGC	CTTCGCC	ACGCCAACCC         ThrThrThrT	:GCAGGG	CTCGCACA	ACGCCGCC           hrProPr	eeceece	AGCC		,	DIAGNOSIS THEIR USE
	၀ ଜ	• н	CGACT 4	н С	H — >	o — o	0 0		၀ ၈			es .
	541 1500	481 1489	421 1473	361 1463	301 1455	241 1448	181 1434	121 1418 .	61 1402			

ProProThrThrThrMetThrThrProSerProThrThrThrProSerSerPro11e 1709 ACGTCAACGGCGCCGGCCGGCAGAAGAAGCAAGAGCGTTCACCGGCAAGAATGCCGGCCG	MetThrThrprogerbrog	1728	뫄
	recreecacecacecceccreaeccc	1466	Qy
	ACGTCAACGGCGCGCCGGTCTGGCAAG.          hrThrThrThrThrProSer	1406 1710	D Qq
	ProProThrThrThrMetThrThrPro	μ ,	B .
	ThrThrThrThrProProThrThr	1671 <sub>.</sub>	D
PIOINTHITHITHIPIOSEIPIOPIOILETHI 1670	COGCACTTUTION THE FIGURE TO TH	1355	δ.
TGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATA 1354	TGCAGGCCGGGTACTTCGCCGACCTGG	1298	P &
	:::	1641	말
	CGGTATGGAAGATGACCGGCCTGACCG	1238	Qy
	:::   ThrLeu	1634	문 /
ThrThr 1633	LottetHIETOPIOTHSET	J 1	<b>2</b> 8
CCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCTGTGGGGCA 1177	CCATGATCGGCTCCGACGGCCTGCCGC	1118	P 29
	ProThrThrThrThrThrThrProPro	1605	Ď,
	TCTACTTCATGATGGACGAAC	1064	Qγ
ARTCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCGGCCGCGCCA 1063   III   I	AATCCAAGTACC	.1585	B 5
ThrThrProSerProProThrThr 1	ThrThrProSerPro	1576	} }
	GCAAGCCCTTCCCCGAACTGAGCGGG	959	Qy
serProProProThrThrThrThr	:::        ::::::     SerProProProThrThrThrTh	1563	뮍
	GCTCCACCATGCTCAAGCAGGACCGC	899	δδ
		. 4	용 .
orleThr 154	TOTAL CONTROL OF THE THEFT	D 44 C 44 C	2 5
CGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGGGAGACGCTGCCGCTGA 841	CGCACCACAAGGTCATGGGCCAGCCC	78	. Q
oProThr 1543	ProProProThrThrThrProSerPr	1533	D.
ဂ	TGGCCGCGCTGGAGGAAACCTTCCGC	722	Qy
SerProProThrThrThrThrThrThr 1532	Se	1524	말
GCCACCACATGCGCGACGAAGGCGAGCACATCG 721		662	γQ
WINThrPro 1523		151 <u>2</u>	đđ
CGAAGAGATCATCGAGGTGTGCCGGC		602	νδ
urProPro 1511	SerProProMetThrThrProIleThrP	1501	뫄

SerilethProponripheSer 1771   SerilethProponripheSer 1771   SerilethProponripheSer 1771   Serist Spaphication US/08922217   No. US/000076414A1   NATE Lodes Michael J.
--

Qy	р	0у :	Db st	Q (	3 S	Db	Qy	Ф	Ϋ́O.	Db	Qγ	σb	ν	מם	Оу	D.	Qy	Db	ν	מם	O <sub>V</sub>	B :	 Ο Ψ	da	0	B .5	- E		g b	ν	<b>B</b>	Ϋ́	Db	Qy
1406 ACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGGCGTTCACCGGCCAGCATGCCGGCCG	691 ProProThrThrThrMetTh	388	671 ThrThrThrProProProThrThrThrProSerSerProTleThrThrThrProSer	л ( л (	1298 TGCAGGCCGGTACTTCGCCGACACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATA 1354	641	1238 CGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCGCGCCTGGCCTGGCCGGGCGCGGGCAGC 1297	1634 ThrLeuProProThrThr 1640	1178 CCTTCCCGCGGGTGCTGGGGGCACTATGCGCGCGACCTGGGGCCTGTTCCCCGCTGGAGACGG 1237	1625 ProIleThrProProThrSerThrThr			1064 TCTACTTCATGATGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGA 1117	1585 ThrProSerProProThr11eThrThrThrProProProThrThrThrProSerPro 1604		-	TGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGCGC	15	GCTGCTGGCCGGACGCACCATCATCACCTGGT 958		842 TCGAGGCCGCCATGGCCCCCCCCCCCCCCCCCCCCCCCC	:::			JOS TOTAL THE THE THE THE TOTAL TOTAL THE THE THE THE THE THE THE THE THE THE	24	1512 AlaSerThrThrLeuProProThrThrPro 1523	602	1501	542 C	1490	482 CAACGCTGCGCGCGGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAAAATCG 541	1474	422

Qy   422 ACCTSGACGCGTTGCGGGCCACGCCGGCTAAGGCCGCCTGTATGGTGGGCCATT   Db   1474   fluthritherbesetproprofile
0y 422 0b 1474 0y 482 0y 542 0p 1501 0b 1501 0b 1512 0p 662 0p 1512 0p 1524 0p 722 0p 1533 0p 1534 0p 1544 0p 1545 0p 1563 0p 1576 0p 1664 0p 1118 0p 1676 0p 1634 0p 1635 0p 1634 0p 1637 0p 1634 0p 1635 0p 1634 0p 1635 0p 1634 0p 1635 0p 1634 0p 1637 0p 1634 0p 1635 0p 1634 0p 1637 0p
P
IGGCCATT 481   IGGAATCG 541   ITThrPro 150   TCGACCG 601   ITTCGACCG 721   ITTCGACCG 721   ITTCGACCG 898   ITTCTGACCG 898   ITTCGACCG 898   ITTCGACCG 1018   ITTCGACCGA 1017   ITTCGACCG 1018   ITTCGACCG 1018   ITTCGACCG 1018   ITTCGACCG 1019   ITTCGACCGACC 1019   ITTCGACCGACCGACCGACCGACCGACCGACCGACCGACCG

lignment Scores: 7.81e-06 Length: 941 core: 285.50 Matches: 137	LENGTH: 941 amino acids TYPE: amino acids TYPE: amino acid TOPOLOGY: linear MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO: 14:	NAME: CSET, LUADO REGISTRATION NUMBER: 31,822 REFERENCE/DOCKET NUMBER: GI 5190 TELECOMMUNICATION INFORMATION: TELEPHONE: (617)876-1170 TELEFAX: (617)876-1851 INFORMATION FOR SEQ ID NO: 14:	FILING DATE: 18-JAN-1991 APPLICATION NUMBER: US 07/546,114 FILING DATE: 29-JUN-1990 APPLICATION NUMBER: US 07/457,196 FILING DATE: 29-DEC-1989 APPLICATION NUMBER: US 07/457,196 FILING DATE: 08-DGC-1989 ATTORNEY/AGENT INFORMATION:	Floppy dis Floppy dis M PC compat STEM: PC-DC CentIn Reld DN DATA: UNBER: US/ 16-Apr-200 NN: <unknow DATA:</unknow 	TITLE OF Geener, Thomas G.  TITLE OF INENTION: Megakaryocyte Stimulating Factors  CORRESPONDENCE ADDRESS:  ADDRESSE: Genetics Institute, Inc.  STREET: 87 CambridgePark Drive  CATY: Cambridge  STATE: Massachusetts  COUNTRY: U.S.A.  COMPUTER RADDAHLE FORM.	RESULT 7 US-10-124-557-14 (S-10-124-557-14); Sequence 14, Application US/10124557 ; Patent No. US20020137894A1 ; GENERAL INFORMATION: ; APPLICANT: Turner, Katherine ; Clark, Stephen C. Jacobs, Kenneth ; Hewick, Rodney M.	Oy 1406 ACGTCAACGGCCCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCG
Db 395 ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro 414  Qy 971 CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGGGCAAATCCAAGTACG 1030			614 CGCC 312 Thri 671 CGCA	271 Thr 494 CCG 281 554 ACC	229 AlaProThrThr	Oy 143 GCATCGCCGCATCGGCGATCTGTCGGACGCCGCGCACACCCGGGTCGACGCTGTCGG 202	ercent Similery Match B: 32 CC 7 32 CC 7 92 AC 7 92 AC 7 187 Th

밁 Ş

415

LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla

434

```
1328 TGTTCGACCCGGCCACGGTGGCCGATACCG---CCACCTTCGAACACCCCTACCGAGCGCG 1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG 1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG---GCTCCGACGGCCTGCCGCACG 1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            589 GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThr 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 453 ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           435 ProThrThrPro-----GluLysProAlaProThrThrProGluGluLeuAlaProThr 452
                                                                                                                                                                      TITLE OF INVENTION: Megakaryocyte Stimulating Factors NUMBER OF SEQUENCES: 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGCCAGCG----CCATCGCGGTCTCGACCCTGTCCAAGG------CCGAGCTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGGCGCGCGCGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGCCCTGAGCCCCGGCGCCAGCCCT 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCGCTTCGGCCTGGCCGGGCAGCTAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACATGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProAla----ProLysGluLeuAlaProThrThrLysGluProThrSerThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProLysGlyThrAlapro---ThrThrLeuLysGluProAlaProThrThrProLysLys 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LysAlaAlaAla---ProAsnThrProLysGluProAlaProThrThrProLysGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGCCACTATGCGC_1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----Pro 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      469
                                                                                                                                           밁
                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ϋ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-009-782-1 (1-1758) x US-10-124-557-84 (1-1022)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-124-557-84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (617)876-5851 INFORMATION FOR SEQ ID NO: 84:
                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                263
                                                                                                                                                                                                                                                                                                                             298 ---
                                                                                                                                                                                                                                                                                                                                                                                                         283 ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                         143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                        GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                     ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                          AlaProThrThr------ProLysGluProAlaPro-----
                                                                                                                                                                                                                                                                    GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                                                                            GCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrLysSerAlaProThrThrProLysGluProAlaProThr------Thr 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: protein SEQUENCE DESCRIPTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear MOLECULE TYPE: protei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: <Unknown> PRIOR APPLICATION DATA:
                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Cserr, Luann
REGISTRATION NUMBER: 31,822
REFERENCE/DOCKET NUMBER: GI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 07/457,196
FILING DATE: 29-DEC-1989
APPLICATION NUMBER: US 07/390,901
FILING DATE: 08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/10/124,557 FILING DATE: 16-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 0 FILING DATE: 29-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 07/643,502 FILING DATE: 18-JAN-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 1022 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.75e-06
285.50
33.50%
23.30%
8.65%
-CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ
                                                                                                                                  ThrThrProLysLysProAlaProThrThrProLys
                                                                                                                                                                                                                                                                                                                    -ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07/546,114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ពួ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Version #1.25
                                                                                                                                    331
                                                                                                                                                                                                                                                                                                                    309
                                             351
                                                                                                                                                                                                                                                                                                                                                                                                                                                           202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267
                                                                                                                                                                                                                                                                                                                                                                                                              297
```

RESULT 8 US-10-124-557-84

1733 AGATCGCCCTGAGCTACGAGAAGC 1756

609 LysGlyProThrSerThrThrSer 616

1685

1625

ThrThrProLysGluProAlaProThrThrPro----

1565

546

1445

510

1385

1268

471

1208

469

Sequence 84, Application US/10124557 Patent No. US20020137894A1 GENERAL INFORMATION:

APPLICANT: Turner, Katherine Clark, Stephen C.

Jacobs, Kenneth Hewick, Rodney M. Gesner, Thomas G.

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genetics Institute,

Inc.

CambridgePark Drive

ZIP: 02140 STATE: Massachusetts CITY: Cambridge STREET: 87

Alignment Scores:	:::      :::
US-10-124-557-74	CACCOLLICA
SEQUENCE	510 ProAlaProLysGluLeuAlaProThrThrLysGluProThrSerThr 626
TOPO	
; INFORMATION FO	
REFI  TELECOMMI  TELL  TELL  TELL	571 AlaproThrThrProLysGluProAlaProThrThrProLysGluThrAlaproThrThr 590
ATTORNEY, NAM REG	552 LYSALAALAALAProAsnThrProLysGluProAlaProThrProLysGluPro 570 328 TGTTCGACCCGGCCACGGTGGTGGTGATACCGGGCGTGTTCGACCGGCCACGGCCACGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT
APP	551Pro 551 268 CGCGCTTCGGCCGGGCCGGCCGGCCGGCCGGCCGGCCGG
App FIL App	
; PRIOR AF	1148 ACGAGCGCCGCATCCGCGCCTGTGGGGGCACCTTCCCGGGGGGGG
CURRENT	ThrProGluGluProThrProThrThrProGluGluProAlaProThTMT
001 001 001	516 ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr 533
COMPUTE	ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGATCAACGAACG
CO	
CORRESP	
; ; TITLE C	456 LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla 475
APPLICA	447 ProLysGluProAlaproThrThrPro 455
US-10-124-557-7, VS-10-124-557-7, Sequence 74, 1 Patent NO. US: GENERAL INFO	GluproSerproThrThrThrLysGluproAlaproThrThr AGGTCATGGCCAGCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCACCACCACA
Db 690 Lysgl	413 ProThrThrLysGluProAlaProThrThrThrLysSerAlaProThrThrProLys 432
670	393 ThrLysGluProSerProThrThrProLysGluProAlaProThrThrThrLysSerAla 412
653	375 ThrThrProLysGluProAlaProThrThrProLysGluProAlaProThrThr 392
Db 642 ThrTh	554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTTCGACCGCGCGCG
Oy 1565 ACATO	CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGG
Db 627	352 ThrThrLysGluProAlaProThrPro

Oy Oy

. **Q** 

od Ad Ag

6 4 6 6 B

B 8

₽

뮹

Allgnment Scores: 7.73e-06 Length:	PILING DATE: 29-JUN-1990 APPLICATION NUMBER: US 07/457, FILING DATE: 29-DEC-1999 APPLICATION NUMBER: US 07/457, APPLICATION NUMBER: US 07/390, FILING DATE: 08-AUG-1989 APTORNEY/AGENT INFORMATION: NAME: CSerr, Luann REGISTRATION NUMBER: GI 51: REFERENCE/DOCKET NUMBER: GI 51: FILECOMMUNICATION NUMB	Genetics Insti CambridgePark oridge sachusetts J.S.A. J.S.A. J.S. Floppy disk IE FORM: DE: Floppy disk IBM PC compatib SYSTEM: PC-DOS/ TION PATA: US ON UNMER: US/10, E: 16-Apr-2002 TION: CUNKNOWN> ON DATA: N NUMBER: US 07, N NUMBER: US 07,	RESULT 9 US-10-124-557-74  Sequence 74, Application US/10124557 Patent No. US20020137894A1  GENERAL INFORMATION: APPLICANT: Turner, Katherine Clark, Stephen C. Jacobs, Kenneth Hevick, Rodney M. Gener, Thomas G. TITLE OF INVENTION: Megakaryocyte NUMBER OF SEQUENCES: 143 CORRESPONDENCE ADDRESS;	Db 627ThrSeraspLysProAlaProThrThrProLysGlyThrAlaPro Qy 1565 ACATGGCCCTCCCTCCGCTCGCATATCGGCCCCACCGATATCGTGGGCAAGGAAGTGA
1038	46,114 57,196 90,901 5190	e Inc. e 502	Stimulating Factors	-ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro 641

782-1 (1-1758) x US-10-124-557-74 (1-1038)  CCARGETCCAARTCCCAACCCTTCGACCTGCTGCGGGGGGGGGCCTCAARCG PROTHE PROTHETH FILLYSSEFALA PROTHETH PROLYSGIUP FOALAPPONTEN: PROTHE PROTHETH FILLYSSEFALAPROTHETH PROLYSGIUP FOALAPPONTEN: PROTHET PROLYSGIUP FOALAPPONTEN: PROTHET PROLYSGIUP FOALAPPONTEN: PROTHET PROLYSGIUP FOALAPPONTEN: PROTHETH FILLYSSEFALAPPONTEN: PROTHETH FILLYSSEFALAPPONTEN: PROLYSGIUP FOALAPPONTEN: PROLYSGIUP FOAL
--

COUNTRY: U.S.A.	•	
ADDRESSEE: Genetics Institute, Inc. STREET: 87 CambridgePark Drive CITY: Cambridge STATE: Masachusetts		
TITLE OF INVENTION: Megakaryocyte Stimulating Factors NUMBER OF SEQUENCES: 143 CORRESPONDENCE ADDRESS:		** ** ** ** *
PLICANT: Turner, Katheri Clark, Stephen Clacobs, Kenneth	. τ. τ. τ. τ.	
10 124- ence	RESULT US-10-: Seque ; Seque	
674 LysGlyProThrSerThrThrSer 681	ф	_
1733 AGATCGCCCTGAGCACGAGAAGC 1756	γ	_
654 GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr	Б	
	Ωy	_
637LysGluproAlaproThrThrProLysGlyThrAlaProThrThrLeuLys	B	
ggaaaatgaccctgcaagacctgtc	Qγ	
626 ThThrProLysGluProAlaProThrThrPro	ğ	
Η .	Qy	
611ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPr	당:	
05 TACAATCCGGC	δ	
TOALAProfyse]  Touchtensessessessessessessessessessessessesse	용 2	
3/5 ProLysGlyThrAlaProThrThrLeuLysGluProAlaProThrThrProLysLys 1445 COCCONTRACTOR CONTRACTOR C	9 6	
CCGCCGGCATCCATTCCGTG	2 5	
	? }	•
1328 TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCG	y S	
sAlaAla	망	
GCGCTTCGGCCTGGCCGGGCGCGGGCAGCTGCAGGCCGGGTACTTCGC	· Q	
535Pro	&.	
1208 GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG	Qy	
534	日	
1148 ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGC	VΩ	
2	B.	
1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCCGCACG	δĀ	
500 ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr	뭥	
1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACG	Ϋ́	
	В	

_												_																								
ξŠ	? {	Z 2	} <b>B</b>	Qy	Дb	γQ	뫄	Qy	ф	γQ	말	VΩ	ДD	Qy	ь В	Ωу	Db	Qy	da	VΩ	D.	VΩ	da da	γo	ф	γo										
. 15		7 5 5 C	. 6	1385	UI		40	1:		بر					•		Ü	~	b	<b>~</b> ç.	ъ.	٧	ъ.	٧	Đ.	¥	В	Qy	В	γΩ	용	Qy	망	Qγ	В	VΩ
.505 TA					598 A	1,328 Т	579 L	1268 C	578 -	1208 (	577 -	1148 /	561	1091	543	031	523	971	503	911	483	851	474	791	460	731	440	671	420	614	402	554	389	494	379	443
CAAT	DIA	11111	COLYS	2000	laPro	GTTC	ysal.	GCGC		CGAC		ACGA6	I hr Pı	TGCAC	ProT	ACGT	LysG	CCGA	ProT	TCAA	Lysi	CCAT	Prol	AGG	Glui	TGG						ACC				
ccee		AGCA	Glyī	GCAI	H.	SACC	aAla:	TICG	-	CIGG		0000	:0G1u	1090F	uTh	GTG	luTh	ACTG,	hrTh	GCAG	ysPr	GCG	ysG1	CATO	Prose	AGGA.	[hrT]	ATGG	LysG	CGC	Thr P	TGGC		CGGT	Thr	CGGC
CGTG	r-Pro	 	hrAl	CCAT	hrPr	GGCC	la:	CCIC		CCT	-	CGCA	Glup	TCCT	Pro-	4923C	CALAR	AGCGG	rThr	GACC	OAla	CGCC	uPro	2099	Pro	ACCI	utthr	70907	luPro	occ.	roLy:	CGAG	:	CATG	:: <sub>'</sub> YSG1	: :-
ACGG	oLysc	3600	aPro-	TCCG	l::: oLys	ACGG	-Pro	icce		STICC		rcce	roTh	GGCG		GCTG	roTh	GCGC	узЬу	CGTG	ProTh	AGGAC	:::    Alapro	AGCC	GluProSerProThr	TCCG	LysG	TCTA	:::	GCGC	SGLuP	3AAGC		<b>20001</b>	uPro	
GGCG	luLe	CGTG	17-	TGTAC	GluPi	TGGC	AsnTi	6 6 6		CGCT		CCT	rProl	TCGC	-GluI	CAGC	rThr	GACC	sPro	CTGC	T:::	GICI	ProLysGluProAlaPro	CAATI		CATC	luPro	2000 2000	ToTh.	ĈĀ	140T	CATG		CTTG	\laPr	
CCT	uAla	CTCG	Thr	GTCA	OAla	GATA	hrPro	2000		GGAG	: :	GTGG	hrTh	CCCG	ysPr	GGCC	ProLy	TGGA	Alapı	TGGC	ProL	С С С		TCGG		GCCG	DAlar	ACCC/	rThr	-ccx	aProj	ecca.	-Lys	CAGC	다. 다.:	GTCA
30000	ProTh	CACGO	LeuLy	ACGG	ProT		LysG	AGCT		2000		3475	rPro	ACCA:	OAla	6666	SLY8	GAAG	CoThr	GGAC	/SG1	GACC		ccec		CGAG	roTh	CATG	10LV	CGAA	hrah	3000	GluPı	ဓင္ပင္သင္	Thre	ACGC
TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCTCCCAACCCTGGACGCAAACCGCT	ProLysGluLeuAlaProThrThrThrLysGluProThrSerThr		ProLysGlyThralaProThrThrLeuLysGluProAlaProThrThrProLys	CCGCCGGCATTCCATTCCGTGTACGTCAACGGCGCGCGCG	AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr	TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTTCGAACACCTATACCTTTCCACCTTTCCAACACCTATACCACC	LysalaalaalaProasnThrProLysGluProalaProThrThrProTueCluCu	ar Aa		GGTA		ACGAGCGCCCGCATCCGCGCCTGTGCGCGCACCTTTCCCCCCCC	ThrProGluGluProThrProThrThrProGluGluProAlaborThrThr	TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGCGTTCGGCCCCGACCATGATCG	ProThrThrProGluLysProAlaProThrThrProGluGluLauAlaProThr	CCATC	LysGluThrAlaproThrThrProLysLysLeuThrProThrThrProGluTvsIonala	TCGC	Alap	GCAC	ProA	CGTA		CGCG	T1	7700	7	ceca	9G1u	GAGA		i A	OAla	GCCA	3=	CCCI
rccc,	ThrL	CCGC	ProA	CGGT	ProL	Č	oAlar DAlar	3000		TGGA			uPro	G -	14Th	TACT	T P C	3000	roLys	CATC	laPro	100		CGAG	hrTh	מיייי ליייי		2	Proal:	L A L	BA1		Profi	CCGA		ÚTAT.
ACCC	/sGlu	TGAG	:: laPro	CIGG	ysG1	7	roginal Includes			GATO I	9661				ProG	J.	rothri	a a a	GluF	TCAC		2		, היי	rLys(	COCC PER PER PER PER PER PER PER PER PER PER						A 10 10 10 10 10 10 10 10 10 10 10 10 10	hral,	na An		טונים י
TGGA	ProT	AGCCCG	Thri	CAAGA	radīu 		1 : 6		7	2000	100			2	luGlı	1 T	hrer	000	roal	i i	rdatų:  -	3			GluPi	ALGE	AGCA		3 6 7 6	) t	() b		0101	2007	9	3333
CGCA	hrse		hrPr	GCAG	laPr				100		GGCA		3 6		)LeuA		oGluI	בו בב הבב	aPro'	400 F	OLVS  -				SATCI	roIni	ATC			TACT		ysty Ysty	:: 6		110	á
ACCG	cThr.	CAGC	er:	GCGT		9			GACC		CTAT		400		1 - C	ני לי	VAL		::: ::::		GLup		7 : C		ProT	Thr	FIGG	Lyss	:::	Proj		SPIO			ACGC	2
⊢	σ.												CACG				TACG	CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGGCGAAATCCAACACTAGAGCGGGCGAAATCCACAACTGGAAATCCACAACTGGAAATCCACAACTGGAAAATCCACAAAATCCACAAAACTCGCGAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAATCCACAAAAATCCACAAAATCCACAAAAATCCACAAAAATCCACAAAAATCACAAAAAA	ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro		LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla	THEFTO	1	AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTTGCCGCTTTTTTTT	GluproSerProThrThrThrLysGluproAlaproThrThrThr	roLy	ProThrThrThrLysGluProAlaProThrThrThrThrEssantaCACATCGTGGCCGCGC	CGCATGGGCATCTACGCCACCCACACACACACACACACAC	ThriysGluProSerProThrThrProLysGluProAlaProThrThrThrThrThrThrThrThrThrThrThrThrThrT	hrin	ThrThrProLysGluProAlaProThrThrProLysGluBroThl[]:::[]	ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCGATTCGCCATTTTTCAGCAGCGGGGGAAGAAAAAAAA			ThrThrLysGluProAlaProThrThrPro	}
564	53	1504	636	1444	1384	766	1327	578	1267	577	1207	5//	1147		260	. 42			a u		910				A 790											
																	J	•		٠		•			Ī	•	_	v			. ω		س.	· œ	ω	1

밁 S 밁 Ş 9

```
; MOLECULE TYPE: protein ; SEQUENCE DESCRIPTION: US-10-124-557-104
  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 11
US-10-124-557-104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 104, Application US/10124557 Patent No. US20020137894A1 GENERAL INFORMATION:
                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 104: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1733 AGATCGCCCTGAGCTACGAGAAGC 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       669
                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: GI 5190 TELECOMMUNICATION INFORMATION: TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPUTER: OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIA Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Turner, Katherine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG------CCGAGCTGGGCC 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGCGCGCGCTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATGGCCCCTCCCTCGCCTCGCAATACGGCCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LysGlyProThrSerThrThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrThrProLysGluProAlaProThrThrPro----
                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 07/643,502
FILING DATE: 18-JAN-1991
APPLICATION NUMBER: US 07/546,114
FILING DATE: 29-JUN-1990
APPLICATION NUMBER: US 07/457,196
FILING DATE: 29-DEC-1989
APPLICATION NUMBER: US 07/390,901
FILING DATE: 08-AUG-1989
                                                                                                                            TYPE: amino acid
                                                                                                    TOPOLOGY: linea:
                                                                                                                                           LENGTH: 1140 amino acids
                                                                                                                                                                                                               TELEFAX:
                                                                                                                                                                                                                                                                                         NAME: Cserr, Luann
REGISTRATION NUMBER: 31,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/10/124,557 FILING DATE: 16-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OF INVENTION: Megakaryocyte Stimulating Factors R OF SEQUENCES: 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clark, Stephen C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jacobs,
                                                                                                                                                                                                          (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CambridgePark Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics Institute,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ||||
|-ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thomas G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kenneth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <Unknown>
                                                             SEQ ID NO:
                                                             104:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        679
                                                  S
                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarit
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-009-782-1 (1-1758) x US-10-124-557-104 (1-1140)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
594 ProThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro 613
                                       911 TCAAGCAGGACCGCGTGCTGCTGGCCGGACCCATCATCATCACCTGGTGCAAGCCCTTCC 970
                                                                                                                          851 CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC 910
                                                                                                                                                                                                                          791
                                                                                                                                                                                                                                                          551 GluProSerProThr-----
                                                                                                                                                                                                                                                                                                        731
                                                                                                                                                                                                                                                                                                                                                  531
                                                                                                                                                                                                                                                                                                                                                                                           671
                                                                                                                                                                                                                                                                                                                                                                                                                                511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480 ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    494 CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGCCCATGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     443 CGCCGGCGG------CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                470 ThrThrLysGluProAlaProThrThrPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            450 GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428 AlaProThrThr------ProLysGluProAlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     263 GCCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                386 ThrLysSerAlaProThrThrProLysGluProAlaProThr------Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              366 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438 .--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                                                                  LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla
                                                                                                                                                                                                            AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCCTGCCGCTGATCGAGGCCG 850
                                                                                                                                                                                                                                                                                           TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA 790
                                                                                                                                                                                                                                                                                                                                    ProThrThrLysGluProAlaProThrThrThrLysSerAlaProThrThrProLys
                                                                                                                                                                                                                                                                                                                                                                              CGCATGGCGGCATCTACGCCACCCACATGCGCGACGACGAGGCACATCGTGGCCGCGC 730
                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCCGCCGCCGCCA---CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrThrProLysGluProAlaProThrThrProLys-----GluProAlaProThrThr 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCTGGCCGAGGAAGCCATGGCCAGCGCGCCATCGGCATTTCGACCGGCGCCCTTCTACC
                                                                                                                                                                            ProLysGluProAlaPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7.66e-06
285.50
33.50%
23.30%
8.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ThrThrProLysLysProAlaProThrThrProLys 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                                                                                                                    ----ThrThrLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                     ----ThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1140
137
60
240
151
```

:

437

427

415

202 400 91

469

479

593

573

564

550

530

670

```
1685 AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG-------CCGAGCTGGGCC 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1328 TGTTCGACCCGGCCACGGTGGCCGATACCG---CCACCTTCGAACACCCTACCGAGCGCG 1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1268 CGCGCTTCGGCCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1148 ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGC 1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG---GCTCCGACGGCCTGCCGCACG 1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        689 AlaproThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr 708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                670 LysAlaAlaAla---ProAsnThrProLysGluProAlaProThrThrProLysGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 614 LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                               GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGGCGCGCCTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACATGGCCCCTCCCTCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCTCCCAACCCTGGACGCAAACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGCGGTCTGGCAAGAGCAGGCGTTCA 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProAla-----ProLysGluLeuAlaProThrThrThrLysGluProThrSerThr---. 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCGCCAGCCCT 1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProLysGlyThrAlaPro---ThrThrLeuLysGluProAlaProThrThrProLysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProThrThrPro-----GluLysProAlaProThrThrProGluGluLeuAlaProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ···ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                         Factors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ......Pro 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      633
                      밁
                                                                                         B
                                                                                                                             Ş
                                                                                                                                                                                                    Q
                                                                                                                                                                   밁
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-009-782-1 (1-1758) x US-10-124-557-44 (1-1270)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
MOLECULE TYPE: protein
;
SEQUENCE DESCRIPTION: SEQ ID
US-10-124-557-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
316 GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                    383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                           304
                                                                                                                             323
                                                                                                                                                              294 AlaproThrThr-
                                                                                                                                                                                                    263
                                                                                                                                                                                                                                          282
                                                                                                                                                                                                                                                       203 GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGG 202
                                                                                                                                                                                                                                                                                                       267 ThrLysGluProAlaPro---
                                                                                                                                                                                                                                                                                                                                                                                       252
                                                                                                                                                                                                                                                                                                                                                                                                                                          232 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr 251
                                                                                                                                                                                                                                                                                                                                                                                                                         92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32
                                                                                                          GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT
                                                                                                                                                                                                                                                                                                                                                                        ThrLysSerAlaProThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                    ACGGCAGCA-----ACACCCCGGGGGGGGGGGGGGGGACCTGGGCGTGCGGGGGGACC 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 02140
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS

OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 31,822
REFERENCE/DOCKET NUMBER: GI
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 07/643,502
FILING DATE: 18-JAN-1991
APPLICATION NUMBER: US 07/546,114
FILING DATE: 29-JUN-1990
APPLICATION NUMBER: US 07/457,196
FILING DATE: 29-DEC-1989
APPLICATION NUMBER: US 07/390,901
FILING DATE: 08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 1270 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/10/124,557 FILING DATE: 16-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cserr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.58e-06
285.50
33.50%
23.30%
8.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                       ---ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                  ---ProLysGluProAlaPro---
                                                                      -ThrThrProLysLysProAlaProThrThrProLys 315
                                                                                                                                                                                                                                                                                             -ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1270
137
60
240
151
                                                                                                              382
                                                                                                                                                                                    322
                                                                                                                                                303
                                                                                                                                                                                                                       293
                                                                                                                                                                                                                                                                                             281
                                                                                                                                                                                                                                                                                                                                                                      266
```

뭥

771

1625

760

ThrThrProLysGluProAlaProThrThrPro-----

1565

1505

745

1445

Sequence 44, Application US/10124557 Patent No. US20020137894A1 GENERAL INFORMATION:

APPLICANT:

Turner, Katherine Clark, Stephen C. Jacobs, Kenneth Gesner, Thomas G.

TITLE OF INVENTION: Megakaryocyte Stimulating NUMBER OF SEQUENCES: 143

CORRESPONDENCE ADDRESS

ADDRESSEE: Genetics Institute, STREET: 87 CambridgePark Drive

Inc.

STATE: Massachusetts

10-124-557-44

1733 AGATCGCCTGAGCTACGAGAAGC 1756

808 LysGlyProThrSerThrThrSer 815

문

1208

669

668

652

634

1385

	200000000000000000000000000000000000000	
<del></del>	CCGGCCAGCATGCCGGCCGCCGCGCGCGCGCGCGCGCGCG	594
		575
·		1385
	8 TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGGG 1384	555
· · · · · ·		1268 536
	···	535
	GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGGATGAACGTGGCCTGGACCTGGAGCTGGAGGCGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG	1208
	⊳	1148
	ThrProGluGluProThrProThrThrProGluGluP	518
	TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACG	1091
	00 ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr 517	500
	ACGTGGTGCCCAACCTACAACCTACAACAACAACAAAAAAAA	1031
		971
		460
	TCAAGCAGGACGCGTGCTGCTGGCGGCGCGCACCATCATCACCTGGTGCAAGCCCTTCC 9	911
	LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla	440
	CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC 91	851
	ProLysGluProAlaPro	431
	AGGTCATGGGCCAGCCCAATTTCGGCCGCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG 85	791
	31 TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA 790	731
	ProThrThrtysGluProAlaProThrThrThrtysSerAlaProThrThrProLys	397
		671
<u>.</u>	:::    ThrLysGluProSerProTh	377
•	CGCCCGCCGCCCACCACCGAAGAGATCATCGAGGTGTGTGCCGGCCGCCA	/ 614
	59 ThrThrProLysGluProAlaProThrThrProLysGluProAlaProThrThr 376	359
		, , , , , 40
	CCGCGGTCATGCCGGACTTGC	49
		. u
	443 CGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493	У 44

	•		
IN IN	٠ به به به به به به به به به به به به به	RESULT US-10- ; Sequ ; Pate ; GE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
FOR	P C C C	13 124 enc nt NER	1505 611 1565 626 1625 637 1685 654 1733
NAME: CSET, NAME: CSET, NAME: CSET, REGISTRATION REFERENCE/DO TELECOMMUNICATION: (61) TELEPHONE: (61) TELEFAX: (61) TELEFAX: (61) RMATION FOR SEQ ID SEQUENCE CHARACTER LENCTH: 1311 TYPE: amino.: TOPOLOGY: 114 MOLECULE TYPE: pro SEQUENCE DESCRIPTI SEQUENCE DESCRIPTI	CORRESSEE ADDRESSEE ADDRESSEE STREET: AB CITY: Cam STATE: MA COUNTRY: ZIP: 0214 COMPUTER READA MEDIUM TY COMPUTER TEADA APPLICATI APPLIC	19 Pr 425	TACAATCCGGCGTGAACGGGGCGGGCGCCCCCCCCCCCC
EE: CSE EERENC EPHON EPHON CHAR STH: CHAR CHAR CHAR CHAR CHAR CHAR CHAR CHAR	ADDRESSE: A STREET: 87 ( CITY: Cambri- STATE: Masss COUNTRY: U: ZIP: 02140 JUER READABLI- MEDIUM TYPE: COMPUTER: II OPERATING SI MY APPLICATION FILING DATE: CLASSIFICATION FILING DATE: APPLICATION FILING DATE: APPLICATION APPLICATION FILING DATE: APPLICATION	77-42 2, Application 22020137894 INFORMATION: TLICANT: Turner Clark, Jacobs Hewick Gesner LE OF INVENTIO	RCCGGC  ProLy  SCCCT         CCCTGGC  RCCGC  RCCGC  RCCGC  RCCGC  RCCGCGC   RCCGCGCGC  RCCGCGCGC  RCCGCGCG  RCCGCGCGCG
	TENEROUS PER COST	NCE CAS	GTGAACC      Th CCCTCCC CCTCCCC SG1uPrc SG1uPrc III SG1uProAle III III STATE III CFCATCC IIII CFCATCC IIII CFCATCC IIII CFCATC IIII CF
err, Luann FION NUMBER: 31,8 FION NUMBER: 31,8 FION INFORMATION: E: (617)876-1170 (617)876-5851 Q ID NO: 42: ACTERISTICS: 1311 amino acids inc. acid inc. ac	WATTA:	1. Hyzex 6	ACGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
RESI RESI RATION: -1170 851 acids acids	J	3/10124557  atherine ephen C. enneth codney M. homas G. Megakaryocyte	CCGGGGTGAAGGGGGGGGGGGGGGGGCGCCCCCCAACCC
GI 5190 0: 42:	Dri Dri Ole MS-1 /12/ //12/ //546 //546		CCCTGTYS
	In 57 57 57 57 57 57 57 57 57 57 57 57 57	Stimulating	CCCCCTCC
	version		CAACC
	#1 25	Factors	CTGGAC  STGGGC  STGGGAC  CTGCAA  CTGCAA  I  DAlaPr
		ີສ໌	TACAATCCGGCGTGAACGGGGCGGCGCCCCCCCAACCCTGGACGCAAACCGCT
•			
			1564 625 1624 636 1684 1683 1732

	ĕ ₹	B	5 B	δ.	8 5	, B	δ β	Ą	용	ð	8	8	8	δ	당 .	δ.	8 8	9	. 5	, 문	δō	B	δõ	문 .	Ş	B 5	SD	DE DE SE PA
	y11 TCAAGCAGGACCGCGTGCTGCTGGCGGACGCACCATCA ::	481 LysLysProAlaProThrThrPro	472 ProLysGluProAlaPro	791 AGGTCATGGGCCAGCCCAATTTCGGCCGCTCG	731 TGGAGGAAACCTTCCGCATCGGCCGCGAGCTG	438 ProThrThrThrLysGluPr	418 ThrLysGluProSerProTh	614 CGCCCGC	::::::	554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCC	387	494 CCGCGGTCATGCCGG	377 ThrThrLysGluProAla	443 CGCCGGCGG	357 GluproAlaproThrThr	383 ACGAAGGCGGCTCTTACC	345345	335 AlaProThrThr	263 GGCGTCGCGACATGACGCCCAAG	323	203 GCCTGGTGGTCGCGCCCGGCTTC	Db 308 ThrLysGluProAlaProThrThrProLysGluProAlaPr	143 GCATCGCCGCCATCGGCG	293 ThrLysSerAlapr		QY 32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTC	US-10-009-782-1 (1-1758) x US-10-124-557-42	Alignment Scores: 7.56e-06 Length: Score: 285.50 Matches: Percent Similarity: 33.50% Conservati Best Local Similarity: 23.30% Mismatches: 0uery Match: 8.65% Indels: DB: 12
2. 014 III III 013 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	TCACCTGGTGCAAGCCCTTCC 9     ;;	LysGluProAlaProThrThrProLysGluProAla 500	Thrihrpro 48	*ThrThrLysGluProAlaProThrThr 471 CGCGAGACGCTGCCGGTGATCGAGGCCG 850	GACGTGCCGGTGGTGATCTCGCACCACA 790	OAlaProThrThrThrLysSerAlaProThrThrProLys 457	43	0	oLysGluProAlaProThrThr 417	GCATTTCGACCGGCGCCTTTCTACC 61	        :::      ThrAlaProLysLysProAlaPro 399	ת ה		AlaPro 37	CCA 44	SE SATO	GCTGG 38	OAlaPro 344	ATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322	sSer 	TACCTICCTCA >	OLYSGluProAlaProThr 322	TO COORDINATION OF THE	LaProThrThr 307	STATE OF THE 28	ė i	(1-1311)	h: 1311 res: 137 rvative: 60 tches: 240 s: 151

	·			•															-					
RESULT US-10- Sequ Pate GE	B 2	₽ ₽	Qy	₽	γQ	р оу	B	γQ	B 8	} B	Qy	문	Qγ	문 5	B B	Q	В	δĀ	밁	δ	밁	ρ	밁	δĀ
121 encent nt	715	695	1685	σ	1625	1565	Ü	1505	635	616	1385	596	1328	577	576	1208	575	1148	. 55	109	54	103	52	97
14 24-557-142 24-557-142 24-57-142 L O. US20020137894A1 ERAL INFORMATION: APPLICANT: Turner, Katherine Clark, Stephen C. Jacobs, Kenneth Hewick, Rodney M. Gesner, Thomas G. TITLE OF INVENTION: Megakaryocyte Stimulating Factors CORRESONDENCES: 143 CORRESONDENCE ADDRESS: ADDRESSE: 60 Genetics Institute, Inc. STREET: 87 CambridgePark Drive CITY: Cambridge	15 LysGlyProThrSerThrThrSer 722	GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThr	AGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC	8	25 TGGGCGCGCGCGCGCGCGAGCGCAAGGCCCAAAGGCCCGAAAAATCAACCTCCAAAAAATCA	65 ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTG	52	05 TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCCTCCCAACCCTGGACGCAAACCCAA	445 CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCCGCCAGCCCT 1504	6 ProLysGlyThrAlaProThrThrLeuLysGluProAlaProThrThrProLysLys	5 CCGCCGGCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA	96	TGTTCGACCCGCCACGGTGGCCGATACCGCGACCTTTCGACCCCACCCC	- GOOGTTAGGCCTGGCCGGCGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG - :-   -:-    1	6	208 GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 126	75	ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCTGGGGGCACTATGCGC	9 ThrProGluGluProThrProThrThrProGluGluP	091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATCATCGGCTCCGACGGCCTCCGCCAC	541 ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr 558		LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluTvateuala	971 CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGCCCCACCCCCAAATGAACTCGACCCCAAACTGAACTAACT
							•											-		•		,		,

43 GGCGGGGGGGGGGGGCAGGGGGCAGGGGGCAGGGGGGGG	D	Qy	đđ	γQ	рь	Qy	dg .	Qy	. <b>Db</b>	Qy	Дb	γo	Db	Ωу	Db	Оу	40	Оу	da	δĀ	DЪ	ν. VQ	Db	VΩ	ַם	γQ	Db	Qy	da	Qy	Db	Qy	ДĎ	· δ	da .	γQ	. [
	37	445	8	385	86	328	79	œ								031	23	71	03		83	51	7	791	60	. 731	440	671	N		402	Ü	· œ	9	379	443	
					AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr	TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCG	<pre>:::   :::                               </pre>	CGCGCTTCGGCCTGGCCGGGCGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG	Pro	GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG		ACGAGCGCCCCCATCCCCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGCACTATGCGC	ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr	TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACG	ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr	ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG	LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla	CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCGAAGCGCGGCAAATCCAAGTACG	ProThrThrTysLysProAlaProThrAlaProLysGluProAlaProThrThrPro	TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCC	<pre>LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla</pre>	CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC	ProLysGluProAlaProThrThrPro	AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG		н	שי	a	0			4	9	4 CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGAAATCGCGGCCATGC	ThrThrLysGluProAlaProThrThrPro	cccccccc	s siurioalarroinfinirrolysGlurroThrProThrThrProLysGluProAlarro

MOLECULE TYPE: Protein. SEQUENCE DESCRIPTION: SEQ ID NO: 50: 4-557-50	; US-10-124	<b>—</b>
CE CHARACTERISTI ENGTH: 1314 amir VPE: amino acid		
OMB	; INFO	
REGISTRATION NUMBER: 31,822 REFERENCE/DOCKET NUMBER: GI 5190 TELECOMMUNICATION INFORMATION:		
08-AUG-198 FORMATION; Luann		
> x		
NUMBER: US 07: 29-JUN-1990		
FRIUM APPLICATION DATA: APPLICATION NUMBER: US 07/643,502 FILING DATE: 18-TAN-1901		
FILING DATE: CLASSIFICATION	• •• ••	
ION DATA:	· · · ·	
IBM PC con	. 4.4.	
READABLE FOR	• •; ••	
Y: U.S.A.	· ··	
	~	
EE CE		
OF INVENTION: Megaka	. <b></b>	
Hewick, Rodney M. Gesner. Thomas G	•• ••	
g X g N	·· ·· ·	
SSULT 15 5-10-124-557-50 Sequence 50, Application US/10124557 Patent No. US20020137894A1 GENERAL INFORMATION:	RESULT 15 US-10-124-5 ; Sequence ; Patent NC ; GENERAL	
717 LysGlyProThrSerThrThrSer 724	Db 7	
	Qy 17	
697 GluproAlaproThrThrProLysLysProAlaproLysGluLeuAlaproThrThrThr 716		
luProAlaProThrThrProLysGlyThrAlaProThrThrLeuLys	2 B	
GGAAAATGACCCTGCAAGACCTGTCGC	Qy 10	
669 ThrThrProLysGluProAlaProThrThrPro	₽.	
1565 ACATGGCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGCCCAACCAACCAACCAACCAACCAACCCAACCCAACCCAACAAACAAAA	ον 1	
ThrSeiAapLysproA apromboms of the control of t		
1505 TACAATCCGGCGTGAACGGCGCGGCGGCGGGGGGGGGGG	Qy . 1	

					<u>.                                    </u>																								
Qy	Db .	Oy.	Qy	. Db	Q YQ	P 29	ф	Qy	문	·	₽ Db	γQ	<del>Д</del>	Qy	Db	φ	<b>B</b>	Qy	Db.	Ωу	D,	γQ	Db	νg	ДĎ	Qy	U 0		
911 TCAAGC	8	475 ProLys	791 AGGTC		731 TGGAGG	71	21	614 CGCCC	403 ThrTh	554 ACCTG	390	494 C	380	443 C	360	383	348	323	338 A	263 G	326 -	203 (	311	143	296	. 92	Db 276 Proi	-10-009-	Alignment Scores: Pred. No.: Score: Percent Similarity: Best Local Similari Query Match: DB:
AGGACCGCGTGC	LysLysProAlaProThrThr	ProLysGluProAlaPro	ATGGGCCAGCCCA	roSerProThr	IOTHTTNTTNTLYSGIuPr GGAGGAAACCTTCCCCATC	3GCGGCATCTACC	ThrLysGluProSerProThrThrP	4555555555555555555555555555555555555	ThrThrProLysGluProAlaProThrThrProLys	GCCGAGGAAGCC.		GTCATGCCGGAC	:::       	GCGG	  -   OAlaProThrTh	\GGCGGCTCTTAC		CATCAGCCTGGCG	ProThrThr	TCGCGACATGACO		GGTGGTCGCGCC	::: ThrLysGluProAlaPr	CGCCGCCATCGG	::: ysSerAlaProT	ACGGCAGCA	CCATGTCCCAATCCGA 	1 (1-1758) x	ty:
TGCTGGCCGGAC	ThrProLysGlu		ATTTCGGCCGCT		ProAlaProTh	3CCACCCACATG	oThrThrProLy	ACCACCGAA	   OAlaProThrTh	ATGGCCAGCGGC	  LysGluPro	TTGCAGCGCGC	aProThrThrPrc	-CCGTCAACGCC	l rProLysGluPı	CGTTTCGAGCG	l Irrhri	CCGCTGGCGCA	·ProL	SCCCAAGATCTC	:::  ThrT	CGGCTTCATCGA	ro	CGATCTGTCGG	::: hrThrProLysG	ACACCCCGGG	TTCCCAGCCCTT	US-10-124-5	7.56e-06 285.50 33.50% 23.30% 8.65%
TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCT::	rolysGluProAlaProThrThr		CGCGCGAGACGCT	TGGACGTGCCGGT     :::   ThrThrLysg	rThrThrLysSer#	:::::	  roLysGluProAlaProThrThrLys	GAGATCATCGAGG	      	GCCATCGGCATTT	OAlaProThrAla	うつくさしゃうしゃうしゃ	o	GCCTGTATGGTGG	rdThrerenders::	OO WEDWOODDOLLE	TProLysLysPro	GCCAACCCGCCCG	::: :::    ProLysGluProAlaPro	SCAGGGCGTCACC?	:::     hrLysGluProAla	CTCGCACACCCACC	ThrThrProLysGluProAlaProThr		luProAlaProTh	GCGGCGCGAC	ATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGGAC	57-50" (1-1314	Length: Matches: Conservative Mismatches: Indels: Gaps:
TGGTGCAAGCCCT1	LysLysProAlaProThrThrProLysGluProAla	ThrThr	AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG	GluProSerProThrThrThrlySGluProAlaproThrh	OAlaProThrThrThrLysSerAlaProThrThrProLys	CGCATGGCGGCATCTACGCCACCCACATGGGGGAAGGAGGGGGAGGACATGGTGGCGGGG	:::     hrThrThrLysSerAla	-CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCG	GluPro&laProThrTh	ACCTGGCCGAGGAAGCCATGGCCAGCGGCGAGCGCATTTTCAACAGAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGAAGA	LysGluProAlaProThrAlaProLvsLvsProAlaPro			CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGC		ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCAATTACTTCTTCTTTTTTTT	ThrThrProLysLysProAlaProThrThrProLysLysProAlaProThrThrProLysLysProAlaProThrThrProLysLysProAlaProThrThrProLysLysProAlaProThrThrThrProLysLysProAlaProLysLysProAlaProThrThrProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysProAlaProLysLysLysProAlaProLysLysLysLysLysLysLysLysLysLysLysLysLysL			GCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT	:::   :::	ACGACA ACTACCTO	ThriysGluProAlaProThrihrProLysGluProAlaProThr		ThrLysSerAlaProThrThrProLysGluProAlaProThr	TGGGGGGGGGGGG	CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTGCTGCGGGGGGGCACCCTCATC	J	1314 137 : 60 150 151
TCC 970	NA 503	-0	85 4	ACA 790	Lys 460	CGC 730	4.	GCG 670		n 4			<u>ئ</u> د		HOTO 379				347		      		325				CCTCATCG 91		

8	504	ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro 523	
Ş	971		
용	524	LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla 543	
Ş	1031		
8	544	ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr 561	
Ϋ́	1091		
မှ	562	ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr 578	
Ş	1148	ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGGCACTATGCGC 1207	
용	578	578	
¥	1208	GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267	
	579	Pro 579	
¥	1268	CGCGCTTCGGCCTGGCCGGGCGGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327	
ğ	580	LysAlaAlaAlaProAsnThrProLysGluProAlaProThrThrProLysGluPro 598	
¥	1328	TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCCTACCGAGCGCG 1384	
ğ	599	AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr 618	
₹	1385	CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA 1444	
Ĕ	619	ProLysGlyThrAlaProThrThrLeuLysGluProAlaProThrThrProLysLys 637	
¥	1445	GCATG	
ŏ	638	ProAlaProLysGluLeuAlaProThrThrThrLysGluProThrSerThr 654	
¥	1505	TACAATCCGGCGTGAACGGGGCGGCGCGCCCCCCCCCAACCCTGGACGCAAACCGCT 1564	
퓻	655	ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro.669	
¥	1565	ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCCAAGGAAGTGA 1624	
8	670	ThrThrProLysGluProAlaProThrThrPro 680	
¥	1625	TGGGCGCGCCTGCGCGCGGGGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684	
ŏ	681	LysGluProAlaProThrThrProLysGlyThrAlaProThrThrLeuLys 697	
¥	1685	AGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC 1732	
ŏ	869	GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr 717	
¥	1733	AGATCGCCCTGAGCTACGAGAAGC 1756	
ō	718	LysGlyProThrSerThrThrSer 725	

Search completed: May 11, 2003, 12:30:20 Job time: 96.5 secs

```
O-/Cgn2_1/USP70_5;
O-/Cgn2_1/USP70_5;
OB-ISSUEd_Patents_AA -OFMT-fastan -SUFFIX-rai -MINMATCH-0.1 -LOOPCL-0
-DB-ISSUEd_Patents_AA -OFMT-fastan -SUFFIX-rai -MINMATCH-0.1 -LOOPCL-0
-LOOPEXT-0 -UNITS-bits -START-1 -END--1 -MARRIX-biosum62 -TRANS-human40.cd1
-LIST-45 -DOCALIGN-200 -THR_SCORE-pct -THR_MAX-100 -THR_MIN-0 -ALIGN-15
-MODE-LOCAL -OUTFMT-pto -NORM-ext -HEARSIZE-500 -MINLEN-0 -MAXLEN-200000000
-USER-US10009782_@CGN_1_1_21_@runat_07052003_122518_23179 -NCPU-6 -ICPU-3
-NC_XLPXY -NO_MAAP -LARGEQUERY -NEG_SCORES-0 -WAIT -LONGLOG -DEV_TIMEOUT-120
-WARN_TIMEOUT-30 -THREADS-1 -XGAPPO-10 -XGAPEXT-0.5 -FGAPDP-6 -FGAPEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                    Š.
                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _n2p.model -DEV=xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xgapop 10.0 ,
Ygapop 10.0 ,
Fgapop 6.0 ,
Delop 6.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 2 L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Issued_Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 gaattccacttgatcgcgga...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               May 11, 2003, 12:10:05 ; Search time 36.5 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/laa/5A_COMB.pep:*
/cgn2_6/ptodata/1/laa/5B_COMB.pep:*
/cgn2_6/ptodata/1/laa/6B_COMB.pep:*
/cgn2_6/ptodata/1/laa/6B_COMB.pep:*
/cgn2_6/ptodata/1/laa/BCTUS_COMB.pep:*
/cgn2_6/ptodata/1/laa/backfiles1.pep:*
                                                                                                                                                                                                                                                               Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    `
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xgapext
Ygapext
Fgapext
Delext
                US-09-413-814-79
US-09-413-814-78
US-09-413-814-78
US-09-199-637A-277
US-09-413-814-79
US-09-219-849-6
US-07-757-0228-84
US-07-757-0228-74
                                                                                                                                                                                                                                                               ä
                                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (without alignments)
2834.274 Million cell updates/sec
                                                            Sequence 78, App.
Sequence 78, App.
quence 78, Appl.
quence 27, Appl.
ence 277, Appl.
6, Appl.
1, Ar
sequence
```

Ü	4	ω	2	Ĥ	ô	9	38	3	6	ω 5		ü	32	31	30	29	28	27	26		24	23	22	21	20	19	18	17	16	15	14	13
252	252	254.5		•	٠	σ	62	26	O	a	O)	O	O	an.	ന	67.	N	270	275	6	27	œ	85.	85.	85.	85.	85.	85.	85.	85.	85.	85
7.6	•	•	٠	٠	•	•	٠	•	٠	٠	•	8.1	8.1	8.1	8.1	٠	•	•	•	•	٠	•	•	•	•	٠.	٠			٠	•	
1442	1442	595	355	355	355	1958	633	822	552	1341	1341	1341	1341	777	720	1958	1461	1461	1064	1057	960	1065	1404	1404	36	36	35	32	32	Ή	μ	$\vdash$
U	N	4	S	4	4	سا	μ	4	•	4	4	4	w	μ.	4	μ.	4	4	Ь	·w	4	ب	4	4	4	4	4	4	4	4	4	4
95	08-316-650-	09-370-838-	-US91-06532	283-471A-	-08-483-533-4	7-945-283-	S-08-642-255-7	-09-219-849-4	S-09-219-849-	-09-548-608-1	-09-570-573-1	-09-500-811-1	-08-963-825-1	-08-642-255-5	-09-219-849-	-07-945-283-	-09-289-578-	9-585-887-	8-642-255-	-08-931-820-	-09-219-849-	-08-642-255-7	-07-757-022B-6	-07-757-022B-2	-07-757-022B-5	-07-757-022B-4	-07-757-022B-4	-07-757-022B-6	-07-757-022B-4	-07-757-022B-5	-07-757-022B-	
e 12, App	equence 12, App	equence 187, Ap	equence 3, Appl	equence 41, App	equence 41, App	equence .2, Appl	equence 73, App	49	7,	equence 18,	equence 18	e 18	e 18, App	e 53, App	e 4, Appl	2, Appl	9, Appl	۰,	62,	e 1,	е 5	72	52	e N	e 52. App	e 40, App	equence 48, App	equence 60,	equence 46,	equence 50,	equence 142,	equence 42,
	252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, App	252 7.6 1442 2 US-08-316-650-12 Sequence 12, App 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, App	254.5 7.7 595 4 US-09-370-838-187 Sequence 187, Ap 252 7.6 1442 2 US-08-316-650-12 Sequence 12, App 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, App	257.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, Appl 254.5 7.7 595 4 US-09-370-838-187 Sequence 187, Appl 252 7.6 1442 2 US-08-316-650-12 Sequence 12, Appl 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl	257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, App 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, Appl 254.5 7.7 595 4 US-09-370-838-187 Sequence 187, App 252 7.6 1442 2 US-08-316-650-12 Sequence 12, Appl 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl	257.5 7.9 355 4 US-08-483-533-41 Sequence 41, App 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, App 257.5 7.9 355 5 PCT-US91-0532-3 Sequence 3. Appl 254.5 7.7 595 4 US-09-370-838-187 Sequence 187, Appl 252 7.6 1442 2 US-08-316-650-12 Sequence 12, Appl 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl	257.5 7.9 1958 1 US-07-945-283-2 257.5 7.9 355 4 US-08-483-533-41 Sequence 42, Appl 257.5 7.9 355 4 US-09-883-471A-41 Sequence 41, Appl 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, Appl 254.5 7.7 595 4 US-09-370-838-187 Sequence 187, Appl 252 7.6 1442 2 US-08-316-650-12 Sequence 12, Appl 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 253 7.6 1442 5 PCT-US95-02251-12	262.5 8.0 633 1 US-08-642-255-73 Sequence 73, App. 262 7.9 1958 1 US-07-945-283-2 Sequence 23, App. 257.5 7.9 355 4 US-08-483-533-41 Sequence 41, App. 257.5 7.9 355 5 PCT-US91-06332-3 Sequence 41, App. 254.5 7.7 595 4 US-09-283-471A-41 Sequence 3, App. 254.5 7.7 595 4 US-09-370-888-187 Sequence 13, App. 252 7.6 1442 2 US-08-316-650-12 Sequence 12, App. 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, App. 253.5 Sequence 12, App. 254.5 7.7 Sequence 12, App. 255.5 Sequence 12, App. 255.	263. 8.0 822 4 US-09-219-849-49 Sequence 49, App. 262.5 8.0 633 1 US-08-642-255-73 Sequence 7, App. 262.7 9 1958 1 US-07-945-283-2 Sequence 2, Appl. 257.5 7.9 355 4 US-08-483-533-41 Sequence 41, App. 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, App. 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 41, App. 254.5 7.7 595 4 US-09-370-838-187 Sequence 3, Appl. 252.7 5 1442 2 US-08-316-650-12 Sequence 12, App. 252.7 5 1442 5 PCT-US95-02251-12 Sequence 12, App. 253.7 5 1442 5 PCT-US95-02251-12 Sequence 12, App. 254.5 7.6 1442 5 PCT-US95-02251-12	7 263 8.0 822 4 US-09-219-849-49 7 263 8.0 822 4 US-09-219-849-49 8 262.5 8.0 633 1 US-08-642-255-73 262 7.9 1958 1 US-07-945-283-2 0 257.5 7.9 355 4 US-09-283-471A-41 1 257.5 7.9 355 4 US-09-283-471A-41 257.5 7.9 355 5 PCT-US91-06532-3 3 254.5 7.7 595 4 US-09-370-838-187 4 252 7.6 1442 5 PCT-US95-02251-12 sequence 12, Apples 252 7.6 1442 5 PCT-US95-02251-12 sequence 12, Apples 252 7.6 1442 5 PCT-US95-02251-12	5 267 8.1 1341 4 US-09-548-608-18 Sequence 18, Apple 262.5 8.0 822 4 US-09-219-849-49 Sequence 7, Appl 263 8.0 822 4 US-09-219-849-49 Sequence 7, Appl 262.5 8.0 633 1 US-08-642-255-73 Sequence 73, Apple 262.7 7.9 1958 1 US-07-945-283-2 Sequence 73, Apple 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, Apple 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 41, Apple 257.5 7.9 355 5 US-09-283-471A-41 Sequence 41, Apple 257.5 7.9 355 5 US-09-283-187 Sequence 3, Apple 257.5 7.9 355 5 US-09-370-831-187 Sequence 187, Apple 257.5 7.7 595 4 US-09-370-831-187 Sequence 187, Apple 258.5 7.7 595 4 US-08-316-650-12 Sequence 127, Apple 258.5 7.6 1442 2 US-08-316-650-12 Sequence 127, Apple 259.5 7.6 1442 5 PCT-US95-02251-12 Sequence 127, Apple 259.5 7.6 1442 5 PCT-US95-02251-12	5 267 8.1 1341 4 US-09-570-573-18 Sequence 18, Apple 5 267 8.1 1341 4 US-09-584-608-18 Sequence 18, Apple 6 266 8.1 552 4 US-09-219-849-7 Sequence 7, Appl 7 263 8.0 822 4 US-09-219-849-49 Sequence 7, Apple 6 262.5 8.0 633 1 US-08-642-255-73 Sequence 73, Apple 6 262.5 8.0 633 1 US-08-642-255-73 Sequence 73, Apple 7 257.5 7.9 355 4 US-08-31-33-41 Sequence 41, Apple 7 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, Apple 7 257.5 7.9 355 5 PCT-US95-06532-9 Sequence 3, Apple 7 257.5 7.9 355 5 PCT-US95-02251-12 Sequence 187, Apple 7 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Apple 7 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Apple 7 252 7.6 1442 5 PCT-US95-02251-12	3 267 8.1 1341 4 US-09-500-811-18 Sequence 18, App. 5 267 8.1 1341 4 US-09-570-573-18 Sequence 18, App. 5 267 8.1 1341 4 US-09-548-608-18 Sequence 18, App. 7 263 8.0 822 4 US-09-219-849-7 8 262.5 8.0 633 1 US-08-642-255-73 Sequence 7, App. 9 262 7.9 1958 1 US-07-945-283-2 10 257.5 7.9 355 4 US-09-283-471A-41 Sequence 2, App. 11 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, App. 1257.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, App. 13 254.5 7.7 595 4 US-09-370-838-187 Sequence 12, App. 14 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, App.	267 8.1 1341 3 US-08-963-825-18 Sequence 18, App. 267 8.1 1341 4 US-09-500-811-18 Sequence 18, App. 267 8.1 1341 4 US-09-570-573-18 Sequence 18, App. 267 8.1 1341 4 US-09-548-608-18 Sequence 18, App. 268 8.1 1341 4 US-09-219-849-49 Sequence 18, App. 279 289 8.0 822 4 US-09-219-849-49 Sequence 7, Appl. 262 5 8.0 633 1 US-08-642-255-73 Sequence 7, Appl. 262 7, 9 1958 1 US-07-945-283-2 Sequence 7, Appl. 257.5 7.9 355 4 US-08-483-533-41 Sequence 2, Appl. 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, Appl. 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 18, Appl. 257.5 7.7 595 4 US-09-283-471A-41 Sequence 3, Appl. 257.5 7.7 595 4 US-09-370-831187 Sequence 18, Appl. 257.5 7.7 595 4 US-09-370-831187 Sequence 18, Appl. 257.5 7.7 595 4 US-09-370-831187 Sequence 18, Appl. 257.5 7.7 595 4 US-09-370-831187 Sequence 18, Appl. 257.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl. 257.5 7.6 1442 5 PCT-US95-02251-12	267 8.1 1341 3 US-08-643-255-53 Sequence 53, App 3 267 8.1 1341 4 US-09-500-811-18 Sequence 18, App 4 267 8.1 1341 4 US-09-500-811-18 Sequence 18, App 4 267 8.1 1341 4 US-09-570-573-18 Sequence 18, App 5 267 8.1 1341 4 US-09-570-573-18 Sequence 18, App 6 266 8.1 552 4 US-09-219-849-7 Sequence 73, App 7 263 8.0 822 4 US-09-219-849-7 Sequence 73, App 8 262-5 8.0 822 4 US-09-219-849-4 Sequence 73, App 1958 1 US-08-642-255-73 Sequence 73, App 1958 1 US-08-643-33-41 Sequence 24, App 1958 1 US-08-3187 Sequence 24, App 1958 1 US-09-283-471A-41 Sequence 24, App 1958 1 US-09-283-471A-41 Sequence 37, App 1958 1 US-09-283-471A-41 Sequence 37, App 1958 1 US-09-283-471A-41 Sequence 37, App 1958 1 US-09-283-471A-41 Sequence 37, App 1958 1 US-09-370-831-187 Sequence 37, App 1958 1 US-09-370-831-187 Sequence 187, App 1958 1 US-08-316-650-12 Sequence 127, App 1958 1 US-08-31	1 267 8.1 720 4 US-09-219-849-4 Sequence 4, Appl 267 8.1 1341 3 US-08-963-825-18 Sequence 53, Appl 267 8.1 1341 3 US-08-963-825-18 Sequence 18, Appl 3 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl 4 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl 5 267 8.1 1341 4 US-09-548-608-18 Sequence 18, Appl 5 262 8.1 1341 4 US-09-219-849-7 Sequence 18, Appl 7 263 8.0 822 4 US-09-219-849-49 Sequence 7, Appl 8 262.5 8.0 823 1 US-08-642-255-73 Sequence 29, Appl 8 262.5 7.9 1958 1 US-08-642-255-73 Sequence 27, Appl 1 257.5 7.9 355 4 US-09-283-471A-41 Sequence 41, Appl 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 17, Appl 257.5 7.9 355 5 PCT-US91-06532-3 Sequence 18, Appl 257.5 7.7 595 4 US-09-370-838-187 Sequence 17, Appl 257.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 258.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 258.5 7.6 1442 5 PCT-US95-02251-12	9 267.5 8.2 1958 1 US-07-945-283-2 Sequence 2, Appi 267.5 8.1 720 4 US-09-219-849-4 Sequence 4, Appi 267.5 8.1 777 1 US-08-642-255-53 Sequence 3, Appi 267.5 8.1 1341 4 US-08-963-825-18 Sequence 18, Appi 267.6 8.1 1341 4 US-09-500-811-18 Sequence 18, Appi 27.5 8.1 1341 4 US-09-500-811-18 Sequence 18, Appi 27.5 8.1 1341 4 US-09-548-608-18 Sequence 18, Appi 27.5 8.1 1341 4 US-09-548-608-18 Sequence 18, Appi 27.5 8.0 8.2 4 US-09-219-849-49 Sequence 18, Appi 27.5 8.0 8.2 4 US-09-219-849-49 Sequence 7, Appi 27.5 8.0 8.3 1 US-08-642-255-7.3 Sequence 7, Appi 27.5 7.9 355 4 US-08-483-533-41 Sequence 2, Appi 27.5 7.9 355 5 PCT-US91-06532-3 Sequence 3, Appi 27.5 7.7 595 4 US-08-311-650-12 Sequence 18, Appi 27.5 7.6 1442 5 PCT-US95-02251-12 Sequence 17, Appi 27.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appi 27.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appi 27.5 7.6 1442 5 PCT-US95-02251-12	270 8.2 1461 4 US-09-289-578-9  8 267.5 8.1 1958 1 US-07-945-289-29  267 8.1 720 4 US-09-219-849-4  267 8.1 777 1 US-08-642-255-53  267 8.1 341 3 US-09-219-849-4  267 8.1 1341 4 US-09-500-811-8  267 8.1 1341 4 US-09-500-811-8  267 8.1 1341 4 US-09-570-573-18  267 8.1 1341 4 US-09-570-573-18  268 8.1 1341 4 US-09-548-608-18  269 8.1 1341 4 US-09-219-849-7  260 8.1 1341 4 US-09-219-849-7  261 8.0 822 4 US-09-219-849-7  262 8.0 823 1 US-08-642-255-73  263 8.0 822 4 US-09-219-849-9  264 9.9 1958 1 US-08-642-255-73  265 9.9 1958 1 US-08-642-255-73  267 9.9 355 4 US-09-283-471A-41  268 9.9 257.5 7.9 355 4 US-09-283-471A-41  269 260 257.5 7.9 355 5 US-08-381-87  269 260 270-831-851-87  269 260 270-831-851-87  269 270-831-851-851-851-851-851-851-851-851-851-85	8.2 1461 4 US-09-289-887-9 Sequence 9, Appl 9 267.5 8.2 1461 4 US-09-289-789-9 Sequence 9, Appl 9 267.5 8.2 1958 1 US-07-945-283-2 Sequence 2, Appl 267 8.1 720 4 US-09-219-849-4 Sequence 2, Appl 267 8.1 77.7 1 US-08-642-255-3 Sequence 3, Appl 267 8.1 1341 3 US-08-963-825-18 Sequence 18, Appl 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl 267 8.1 1341 4 US-09-548-608-18 Sequence 18, Appl 267 8.1 1341 4 US-09-219-849-7 Sequence 18, Appl 267 8.1 1341 4 US-09-219-849-7 Sequence 7, Appl 267 8.0 822 4 US-09-219-849-49 Sequence 49, Appl 267 8.0 823 1 US-08-642-255-73 Sequence 27, Appl 270-838-133-41 Sequence 3, Appl 270-838-138-7 Sequence 41, Appl 270-838-138-7 Sequence 3, Appl 270-838-138-7 Sequence 18, Appl 270-838-138-7 Sequence 17, Ap	7 275 8.3 1064 1 US-08-642-255-62 Sequence 62, App. 7 270 8.2 1461 4 US-09-585-897-9 Sequence 9, Appl. 8 270 8.2 1461 4 US-09-289-578-9 Sequence 9, Appl. 8 270 8.2 1461 4 US-09-289-578-9 Sequence 9, Appl. 9 267.5 8.1 1720 4 US-09-219-849-4 Sequence 2, Appl. 267 8.1 770 1 US-08-642-255-53 Sequence 3, Appl. 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl. 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl. 267 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl. 267 8.1 1341 4 US-09-500-571-18 Sequence 18, Appl. 267 8.1 1341 4 US-09-548-608-18 Sequence 18, Appl. 267 8.1 1341 4 US-09-548-608-18 Sequence 18, Appl. 267 8.0 822 4 US-09-219-849-49 Sequence 18, Appl. 262 7.9 1958 1 US-08-642-255-73 Sequence 7, Appl. 257.5 7.9 355 4 US-08-483-533-41 Sequence 2, Appl. 257.5 7.9 355 4 US-09-283-471A-41 Sequence 3, Appl. 257.5 7.9 355 5 PCT-US91-0552-3 Sequence 17, Appl. 257.5 7.7 595 4 US-09-370-838-187 Sequence 187, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.8 142 Sequence 187, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.8 142 Sequence 127, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.8 142 Sequence 127, Appl. 257.5 7.8 142 Sequence 127, Appl. 257.5 7.6 1442 Sequence 127, Appl. 257.5 7.8	5 276.5 8.4 1057 3 US-08-931-820-1 Sequence 1, Appl 7 270 8.2 1461 4 US-09-585-827 Sequence 9, Appl 8 270 8.2 1461 4 US-09-585-827 Sequence 9, Appl 8 270 8.2 1461 4 US-09-289-578-9 Sequence 9, Appl 9 267.5 8.2 1958 1 US-07-248-25 Sequence 9, Appl 1 267 8.1 720 4 US-09-289-578-9 Sequence 2, Appl 267 8.1 777 1 US-08-642-255-53 Sequence 3, Appl 1 267 8.1 1341 4 US-09-219-849-4 Sequence 18, Appl 267 8.1 1341 4 US-09-570-573-18 Sequence 18, Appl 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 267 8.0 822 4 US-09-219-849-49 Sequence 18, Appl 262.5 8.0 822 4 US-09-219-849-49 Sequence 7, Appl 262.5 7.9 355 4 US-08-642-255-73 Sequence 2, Appl 257.5 7.9 355 4 US-08-83-33-41 Sequence 41, Appl 257.5 7.9 355 5 US-08-83-33-18 Sequence 3, Appl 257.5 7.9 355 5 US-08-283-471A-41 Sequence 3, Appl 257.5 7.9 355 5 US-08-283-471A-41 Sequence 3, Appl 257.5 7.7 595 4 US-09-270-833-187 Sequence 3, Appl 257.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 257.5 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 257.5 7.6 1442 5 PCT-US95-02251-12	5 277 8.4 1057 3 US-09-219-849-5 5 276.5 8.4 1057 3 US-08-931-20-1 6 275 8.3 1064 1 US-08-642-255-62 770 8.2 1461 4 US-09-5887-9 8 270 8.2 1461 4 US-09-289-789-9 8 270 8.2 1461 4 US-09-289-789-9 9 267.5 8.2 1958 1 US-07-945-283-2 267 8.1 770 1 US-08-642-255-3 267 8.1 1341 3 US-08-642-255-3 267 8.1 1341 4 US-09-219-849-4 267 8.1 1341 4 US-09-500-811-18 267 8.1 1341 4 US-09-500-811-18 267 8.1 1341 4 US-09-500-811-18 267 8.1 1341 4 US-09-500-811-18 268 8.1 1341 4 US-09-500-811-18 269 8.1 1341 4 US-09-500-811-18 260 8.1 1341 4 US-09-500-811-18 261 8.1 1341 4 US-09-500-811-18 262 9.1 1341 4 US-09-500-811-18 263 8.0 822 4 US-09-219-849-7 264 105-09-219-849-7 265 8.1 1341 4 US-09-219-849-7 267 8.1 1341 4 US-09-219-849-7 268 8.1 1341 4 US-09-219-849-7 269 8.1 1341 4 US-09-219-849-7 260 8.1 1341 4 US-09-219-849-7 261 8.1 1341 4 US-09-219-849-7 262 9.1 1341 4 US-09-219-849-7 263 8.0 822 4 US-09-219-849-7 264 105-09-219-849-7 265 8.1 1341 4 US-09-219-849-7 267 8.1 1341 4 US-09-219-849-7 268 8.1 1341 4 US-09-219-849-7 269 8.1 1341 4 US-09-219-849-7 260 8.1 1341 4 US-09-219-849-7 261 8.1 1341 4 US-09-219-849-7 262 9.1 1341 4 US-09-219-849-7 263 8.0 822 4 US-09-219-849-7 264 105-09-219-849-7 265 8.1 1341 4 US-09-219-849-7 266 8.1 1341 4 US-09-219-849-7 267 8.1 1341 4 US-09-219-849-7 268 8.1 1341 4 US-09-219-849-7 269 8.1 1341 4 US-09-219-849-7 260 8.1 1341 4 US-09-219-849-7 261 8.1 1341 4 US-09-219-849-7 262 9.1 1341 4 US-09-219-849-7 263 8.0 822 4 US-09-219-849-7 264 105-09-219-849-7 265 8.1 1341 4 US-09-219-849-7 267 8.1 1341 4 US-09-500-811-18 269 8.1 1341 4 US-09-219-849-7 269 8.1 1341 4 US-09-219-849-7 260 8.1 1341 4 US-09-219-849-7 261 8.1 1341 4 US-09-219-849-7 262 9.1 1341 4 US-09-219-849-7 263 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	283 8.6 1065 1 US-08-642-255-72 Sequence 72, App. 276.5 8.4 1057 3 US-08-931-820-1 Sequence 7.2 App. 276.5 8.4 1057 3 US-08-931-820-1 Sequence 5. App. 276.5 8.3 1064 1 US-08-642-255-62 Sequence 6.2 App. 276.5 8.3 1064 1 US-08-642-255-62 Sequence 9. App. 276.7 8.1 1461 4 US-09-289-578-9 Sequence 9. App. 276.7 8.1 1720 4 US-09-289-578-9 Sequence 2. App. 276.7 8.1 1720 4 US-09-289-578-9 Sequence 2. App. 276.7 8.1 1741 3 US-08-642-255-53 Sequence 3. App. 276.7 8.1 1341 4 US-09-578-573 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-18 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-18 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-573 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-573 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-573 Sequence 18. App. 276.7 8.1 1341 4 US-09-578-573 Sequence 7. App. 276.7 8.0 822 4 US-09-218-849-49 Sequence 7. App. 276.7 8.0 822 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.0 822 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-218-849-49 Sequence 7. App. 276.7 8.1 1341 4 US-09-370-838-18 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.2 US-08-318-650-12 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence 3. App. 376.7 8.1 4.2 Sequence	2 285.5 8.7 1404 4 US-07-757-0228-62 Sequence 62, Appl 5 276.5 8.4 1057 3 US-08-642-255-62 Sequence 72, Appl 5 276.5 8.4 1057 3 US-08-931-820-1 Sequence 1, Appl 7 270 8.2 1461 4 US-09-289-578-9 Sequence 2, Appl 8 270 8.2 1461 4 US-09-289-578-9 Sequence 9, Appl 8 270 8.2 1461 4 US-09-289-578-9 Sequence 9, Appl 1 267 8.1 1341 4 US-09-289-578-1 Sequence 2, Appl 1 267 8.1 1341 3 US-08-642-255-3 Sequence 3, Appl 1 267 8.1 1341 4 US-09-219-849-4 Sequence 18, Appl 1 267 8.1 1341 4 US-09-570-571-18 Sequence 18, Appl 1 267 8.1 1341 4 US-09-570-571-18 Sequence 18, Appl 1 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 1 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 1 267 8.1 1341 4 US-09-588-608-18 Sequence 18, Appl 1 257.5 7.9 355 4 US-08-642-255-73 Sequence 7, Appl 1 257.5 7.9 355 4 US-09-283-471A-41 Sequence 2, Appl 1 257.5 7.9 355 5 PCT-US91-083-187 Sequence 3, Appl 2 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 2 252 7.6 1442 5 PCT-US95-02251-12 Sequence 12, Appl 2 252 7.6 1442 5 PCT-US95-02251-12	285.5 8.7 1404 4 US-07-757-022B-2 285.5 8.7 1404 4 US-07-757-022B-2 285.5 8.7 1404 4 US-07-757-022B-62 285.5 8.4 1065 1 US-08-642-255-72 285.6 8.4 1065 1 US-08-642-255-72 285.6 8.4 1057 3 US-08-642-255-62 285.6 8.4 1057 3 US-08-642-255-62 285.6 8.4 1057 3 US-08-642-255-62 285.6 8.4 1057 3 US-08-642-255-62 285.6 8.2 1461 4 US-09-289-578-9 285.6 8.1 1958 1 US-09-289-578-9 285.7 8.1 1958 1 US-09-289-578-9 285.7 8.1 1941 4 US-09-219-849-4 2867 8.1 1941 4 US-09-219-849-4 2867 8.1 1941 4 US-09-500-811-18 2867 8.1 1941 4 US-09-500-811-18 2867 8.1 1941 4 US-09-500-81-18 2867 8.1 1941 4 US-09-219-849-49 2868 8.1 552 4 US-09-219-849-49 2869 8.0 852 4 US-09-219-849-49 2869 8.0 852 4 US-09-219-849-49 2869 8.0 852 4 US-09-219-849-49 287.5 7.9 355 4 US-08-483-533-41 2869 8.0 852 4 US-09-283-471A-41 287.5 7.9 355 4 US-09-283-471A-41 2889 8.0 852 4 US-09-283-471A-41 2899 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	10 285.5 8.7 1363 4 US-07-757-022B-52 Sequence 52, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 72, App. 3 283 8.6 1065 1 US-08-642-255-72 Sequence 72, App. 3 276.5 8.4 1057 3 US-08-642-255-62 Sequence 72, App. 3 276.5 8.3 1064 1 US-08-642-255-62 Sequence 1, Appl. 3 276.5 8.3 1064 1 US-08-642-255-62 Sequence 62, App. 3 276.5 8.3 1064 1 US-09-289-578-9 Sequence 9, Appl. 3 267.5 8.2 1958 1 US-07-945-283-2 Sequence 9, Appl. 3 267.5 8.1 1720 4 US-09-289-578-9 Sequence 2, Appl. 3 267.5 8.1 1341 3 US-08-642-255-53 Sequence 2, Appl. 3 267.5 8.1 1341 4 US-09-289-578-9 Sequence 18, Appl. 3 267.5 8.1 1341 4 US-09-570-571-18 Sequence 18, Appl. 3 267.5 8.1 1341 4 US-09-570-571-18 Sequence 18, Appl. 3 267.5 8.0 822 4 US-09-219-849-4 Sequence 18, Appl. 3 262.5 8.0 822 4 US-09-219-849-4 Sequence 18, Appl. 3 262.5 7.9 355 4 US-09-283-471A-41 Sequence 7, Appl. 3 257.5 7.9 355 5 PCT-US91-05251-12 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-18 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 US-09-370-838-73 Sequence 3, Appl. 3 254.5 7.7 595 4 U	9 285.5 8.7 1361 4 US-07-757-022B-40 Sequence 40, App. 285.5 8.7 1404 4 US-07-757-022B-2 Sequence 22, App. 285.5 8.7 1404 4 US-07-757-022B-2 Sequence 52, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, App. 3 1065 1 US-08-642-255-72 Sequence 72, App. 3 1064 1 US-08-642-255-62 Sequence 72, App. 3 1064 1 US-08-642-255-62 Sequence 72, App. 3 1064 1 US-08-642-255-62 Sequence 72, App. 3 1064 1 US-09-585-887-9 Sequence 9, App. 3 1064 1 US-09-585-887-9 Sequence 9, App. 3 1064 1 US-09-289-578-9 Sequence 2, App. 3 1064 1 US-09-289-578-9 Sequence 2, App. 3 1064 1 US-09-219-849-4 Sequence 3, App. 3 1064 1 US-09-500-811-18 Sequence 18, App. 3 1065 1 US-09-548-608-18 Sequence 18, App. 3 1064 1 US-09-548-608-18 Sequence 18, App. 3 1064 1 US-09-548-608-18 Sequence 18, App. 3 1064 1 US-09-548-608-18 Sequence 18, App. 3 1064 1 US-09-548-608-18 Sequence 7, App. 3 1064 1 US-09-548-608-18 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 7, App. 3 1064 1 US-09-219-849-49 Sequence 2, App. 3 1064 1 US-09-219-849-533-41 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532-3 Sequence 3, App. 3 1064 1 US-09-310-6532	8 285.5 8.7 1354 4 US-07-757-022B-48 Sequence 48, App. 285.5 8.7 1361 4 US-07-757-022B-52 Sequence 52, App. 285.5 8.7 1404 4 US-07-757-022B-52 Sequence 52, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 72, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 72, App. 285.5 8.7 1065 1 US-08-642-255-72 Sequence 72, App. 276.5 8.4 1057 3 US-08-931-820-1 Sequence 52, App. 276.5 8.4 1057 3 US-08-931-820-1 Sequence 52, App. 276.5 8.4 1057 3 US-09-289-578-9 Sequence 9, App. 276.5 8.2 1461 4 US-09-289-578-9 Sequence 9, App. 276.5 8.2 1461 4 US-09-289-578-9 Sequence 9, App. 276.5 8.2 1461 4 US-09-289-578-9 Sequence 9, App. 276.7 8.1 177.1 US-08-642-255-53 Sequence 9, App. 276.7 8.1 177.1 US-08-642-255-53 Sequence 18, App. 276.7 8.1 1341 4 US-09-219-849-4 Sequence 18, App. 276.7 8.1 1341 4 US-09-500-811-18 Sequence 18, App. 276.7 8.0 822 4 US-09-500-811-8 Sequence 18, App. 276.7 8.0 822 4 US-09-219-849-4 Sequence 18, App. 276.7 8.0 822 4 US-09-219-849-4 Sequence 18, App. 276.7 8.0 822 4 US-09-219-849-4 Sequence 7, App. 1958 1 US-08-642-255-73 Sequence 7, App. 276.7 8.1 1341 4 US-09-588-608-18 Sequence 7, App. 1958 1 US-08-642-255-73 Sequence 7, App. 1958 1 US-08-643-233-41 Sequence 24, App. 276.7 8.1 1341 4 US-09-219-849-49 Sequence 18, App. 276.7 8.1 1341 4 US-09-219-849-49 Sequence 18, App. 276.7 8.2 US-08-318-7 Sequence 29, App. 277.5 955 4 US-09-283-4718-41 Sequence 3, App. 277.5 955 4 US-09-370-833-87 Sequence 3, App. 277.5 955 4 US-09-370-833-87 Sequence 3, App. 277.5 955 4 US-09-370-833-87 Sequence 3, App. 277.5 955 4 US-09-370-833-87 Sequence 12, App. 277.5 955 4 US-09-370-833-87 Sequence 12, App. 275.5 955 755 955 955-955-955-955-955-955-955-955-9	7 285.5 8.7 1320 4 US-07-757-022B-60 8 285.5 8.7 1361 4 US-07-757-022B-60 9 285.5 8.7 1361 4 US-07-757-022B-40 1 285.5 8.7 1363 4 US-07-757-022B-20 1 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-07-757-022B-2 2 285.5 8.7 1404 4 US-08-642-255-62 2 286.0 8.3 1064 1 US-08-642-255-62 2 287.0 8.3 1064 1 US-08-642-255-62 2 289.0 8.2 1461 4 US-09-289-589-9 2 267.5 8.3 1064 1 US-09-289-589-9 2 267.5 8.1 1341 4 US-09-289-59-9 2 267.6 8.1 1341 4 US-09-219-849-4 2 267 8.1 1341 4 US-09-570-531-18 2 267 8.1 1341 4 US-09-570-531-18 2 267 8.1 1341 4 US-09-570-531-18 2 267 8.1 1341 4 US-09-570-531-18 2 267 8.1 1341 4 US-09-570-531-18 2 267 8.1 1341 4 US-09-219-849-7 2 268 8.0 822 4 US-09-219-849-7 2 269 8.0 822 4 US-09-219-849-7 2 269 8.0 822 4 US-09-219-849-7 2 269 8.0 822 4 US-09-219-849-7 2 269 8.0 820 1 US-08-642-255-7 2 269 8.0 820 1 US-08-642-255-7 2 269 8.0 820 1 US-08-642-255-7 2 260 8.0 822 4 US-09-319-849-7 2 261 8.0 822 4 US-09-319-849-7 2 262 8.0 823 1 US-08-642-255-7 3 264 8.0 823 1 US-08-642-255-7 3 265 7.9 355 4 US-09-319-849-7 3 266 8.1 Sequence 41 3 267 8.1 Sequence 41 3 267 8.1 Sequence 41 3 267 8.1 Sequence 41 4 US-09-318-650-12 4 US-09-318-650-12 4 US-09-316-650-12	7 285.5 8.7 1320 4 US-07-757-022B-46 Sequence 46, 285.5 8.7 1324 4 US-07-757-022B-48 Sequence 46, 285.5 8.7 1361 4 US-07-757-022B-48 Sequence 40, 285.5 8.7 1361 4 US-07-757-022B-40 Sequence 22, 285.5 8.7 1404 4 US-07-757-022B-52 Sequence 52, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.4 1065 1 US-08-642-255-62 Sequence 62, 285.5 8.4 1057 3 US-08-931-920-1 Sequence 62, 275 8.3 1064 1 US-08-642-255-62 Sequence 62, 275 8.3 1064 1 US-09-585-887-9 Sequence 62, 275 8.2 1461 4 US-09-585-887-9 Sequence 9, 2867-58 8.2 1461 4 US-09-289-578-9 Sequence 63, 2867-81 1341 4 US-09-289-578-3 Sequence 24, 2867-81 1341 4 US-09-570-571-18 Sequence 18, 267 8.1 1341 4 US-09-570-571-18 Sequence 18, 267 8.1 1341 4 US-09-570-571-18 Sequence 18, 267 8.1 1341 4 US-09-570-571-18 Sequence 18, 267 8.1 1341 4 US-09-570-573-18 Sequence 18, 267 8.0 822 4 US-09-219-849-7 Sequence 7, 2869-81 18, 2869-81	5 285.5 8.7 1314 4 US-07-757-022B-50 Sequence 50, 285.5 8.7 1320 4 US-07-757-022B-60 Sequence 46, 285.5 8.7 1320 4 US-07-757-022B-60 Sequence 48, 285.5 8.7 1361 4 US-07-757-022B-60 Sequence 48, 285.5 8.7 1361 4 US-07-757-022B-60 Sequence 40, 285.5 8.7 1364 4 US-07-757-022B-60 Sequence 40, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 62, 285.5 8.7 1404 4 US-09-219-649-5 Sequence 62, 285.5 8.7 1404 4 US-09-219-649-5 Sequence 62, 285.5 8.7 1405 4 US-09-219-849-6 Sequence 62, 285.5 8.7 1405 4 US-09-289-578-9 Sequence 9, 285.5 8.7 1405 4 US-09-289-578-9 Sequence 2, 285.5 8.7 1405 4 US-09-219-849-4 Sequence 18, 285.7 8.1 1341 4 US-09-508-811-18 Sequence 18, 286.7 8.1 1341 4 US-09-508-81-83-2 Sequence 18, 286.7 8.1 1341 4 US-09-508-81-83-2 Sequence 18, 286.7 8.1 1341 4 US-09-508-81-83-2 Sequence 18, 286.7 8.0 822 4 US-09-219-849-7 Sequence 18, 286.7 8.0 822 4 US-09-219-849-7 Sequence 7, 286.7 8.0 822 4 US-09-219-849-7 Sequence 7, 286.7 8.0 822 4 US-09-219-849-7 Sequence 7, 286.7 8.0 822 4 US-09-318-33-41 Sequence 7, 286.7 8.1 1341 4 US-09-318-33-41 Sequence 3, 287.5 7, 355 4 US-09-370-811-8 Sequence 41, 257.5 7, 355 4 US-09-370-831-8 Sequence 3, 286.7 5, 355 4 US-09-370-831-8 Sequence 41, 257.5 7, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 4 US-09-370-831-8 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3, 286.7 5, 595 5 PCT-US-91-0532-3 Sequence 3,	5 285.5 8.7 1313 4 US-07-757-022B-142 Sequence 142, App. 285.5 8.7 1320 4 US-07-757-022B-46 Sequence 46, App. 285.5 8.7 1320 4 US-07-757-022B-46 Sequence 46, App. 285.5 8.7 1361 4 US-07-757-022B-48 Sequence 40, App. 285.5 8.7 1363 4 US-07-757-022B-62 Sequence 40, App. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, Appl. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, Appl. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, Appl. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, Appl. 285.5 8.7 1404 4 US-07-757-022B-62 Sequence 52, Appl. 275.5 8.4 1057 3 US-08-642-255-72 Sequence 52, Appl. 276.5 8.3 1064 1 US-08-642-255-62 Sequence 52, Appl. 276.5 8.3 1064 1 US-08-642-255-62 Sequence 62, Appl. 276.5 8.3 1064 1 US-09-289-578-9 Sequence 62, Appl. 276.5 8.3 1064 1 US-09-289-578-9 Sequence 62, Appl. 276.7 8.1 1341 4 US-09-289-578-9 Sequence 62, Appl. 276.7 8.1 1341 4 US-09-289-578-9 Sequence 63, Appl. 276.7 8.1 1341 4 US-09-500-811-18 Sequence 61, Appl. 276.7 8.1 1341 4 US-09-500-811-18 Sequence 18, Appl. 276.7 8.1 1341 4 US-09-510-811-18 Sequence 18, Appl. 276.7 8.0 822 4 US-09-219-849-4 Sequence 18, Appl. 276.7 8.0 822 4 US-09-219-849-4 Sequence 18, Appl. 276.7 8.0 822 4 US-09-219-849-4 Sequence 73, Appl. 276.7 8.0 822 4 US-09-219-849-4 Sequence 73, Appl. 276.7 8.0 822 4 US-09-219-849-4 Sequence 73, Appl. 276.7 8.1 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2

## ALIGNMENTS

Application US/09413814

იიი

; TYPE: PRT ; ORGANISM: Sorangium US-09-413-814-79 Percent Similarity: Score: Alignment Scores: Pred. No.: Best Local Similarity: SEQ ID NO 79 CURRENT FILING DATE: 1999-10-07
EARLIER APPLICATION NUMBER: DE 198 46 493.2
EARLIER FILING DATE: 1998-10-09
NUMBER OF SEQ ID NOS: 107 TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide or TITLE OF INVENTION: heteropolyketide compounds FILE REFERENCE: PCT/US 99/23535 CURRENT APPLICATION NUMBER: US/09/413,814 APPLICANT: Bloecker, APPLICANT: LENGTH: 1213 79, 25064 Cino, Paul M Dougherty, Brian Goldberg, Steven Mueller, Joachim Reichenbach, Hans Brandt, Petra Beyer, Stefan Gesellschaft fuer Biotechnologische Forschung mbH Bristol-Myers Squibb, Co. Hofle, Gerhard 1.41e-19 398.50 36.42% 32.25% cellulosum Helmut r > Length: Matches: Conservative: Mismatches:

	327	;			pArgGly	22 a	DD 3	
	940	CCGGAC	AGGACCGCGTG	CCATGCTCAAGC	GTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGG	81 C	·	
	322			gAlaArgArgGl	oAlaArgGluProAlaHisLeuArgAlaArgArgGly-	07		
	088		CGCCAGGAC	AGGCCGCCATGG	CGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACG	21	. Qу . 8	
	307			SinHisPro	yArgArgProGlyValAlaGlnHi	294 yargargero	В	
	820		reeeccaecco	ACCACAAGGTCA	TGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCT	761 TGGACGTGC	Qy	
	294	 ProAspArgGl	 	:::		18	Db 2	
	760	ceaec	TCCGCATCGGC	TGGAGGAAACCT	AAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCG	07	Qý 7	
	281		  ArgGluI	.g	OATGGlyLeuProArgAlaProArgArgGluProArgArgArgAs	66	Db 2	
	706		TCTACGCCAC	CGCATGGCGGCA	GCCGGCCGCTGAGCC	47 T	Оу 6	
	266		  ProArgSer	  pProAlaGluAl	:::	 249 oArgHisAs	臣	
	64 5 64 5		CCCGCGCCAC	PACCCGCCCGCCG	CGACCGGCGCCTTC	587 TCGGCATTT	Qy	
	2 0	Valalabro	gProGlvAla	           	Valp	:: 229 pGlyAspAl	<b>B</b>	
	71 E				GGAAGCCATGGCCAG	564GGAAG	Qy	
	229		gValGluLeu 	:::    gAlaGlyAspAr	   GAlaArgGlyAlaArgAlaGlyAspArgValGluLeuGlyProGlyAlaAs	209 aLeuAlaAr	Db	
	563	GGACCTGGCCGA	CGGCCATGCG	GACGAGGAAATCG	- ecececececo	509 ACTTGCA	δĀ	
	209	×	ProArg	<pre>GArgAspProArgProTyr</pre>	hrgargargaspP	193Argar	В	
	508	CGCGGTCATGCCGG	CGCTGCGCGC	GTGGGCCATTCAA		449 CGGCCGTCA	γQ	
	192	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Argaspalaargarg	   Argaspa	185 gArgval		
••	448	GCGGGCCACGCCGG	TGGACGCGTT	TTCGCCGACTACC	CGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGG	389 GCGGCTCTT	Qy	
	185	  ProValGlyLeuAr	laGluLeuArg	 rgAlaLeuValAl		165 gArgProGl	90	
	986	CCTGCTGGACGAAG	CCCCCCTGGA	GCCAACCCGCCCG	CAGCCTGGCGCCGCTGGCGCACGCCAACCCCCCCCCCCC	329 TCAGCCTGG	VQ	
	165	 -GlnProProLeuArgAr	lsGln	GlyProArgHis-		153 yGluHis	В	
	328	AGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCA	CGGTGGTCAC	CAGGGCGTCACCA	GCGACATGACGCCCAAGATCTCGC	269 GCGACATG	Ωу	
	153	:::  ProProArgArgGl	rgAspAspArg	lli LaAlaGlnGlyA	pLeuH1sValArgValH1sGlyAlaAlaGlnGlyArgAspAspArgProProArgArgGl	133 pLeuH1sVa	<b>D</b>	
	268	CCTGCTCAGGCGTC	SACGACAACTA	TCGCACACCCAC	н	216G	ν	
	133		ysH1sGlyArg	  laAlaArgArgL	 	H	艮	
	215	TCG	rc	CGGGTCGACGTG:	cecceceacacacceeerceacererc	174	Ϋ́	
	113	Alaval	rgArgArgArg 	  IsArgAlaProA		93 gAspAspA:	B	
	⊢		GCGATCTGTO	CATCGCCGCCATC	ACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGC	122 ACCTGGGC	γQ	
	93		ProHisAla	 	:::        ::: 	74 GlnAlaPr	ָ <b>ט</b>	
		9-23:122:20		AGCA AC ACCCCO	ACCCTCATCGACGG	74 ceeeceec	Ω	
	73	#ATTIVECATETICCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCG   H	TCCCAGCCCT:            -ProSerPro	STCCCAATCCGAT      aProGly	2=2	:::   ::: 56 AlaArgArgArg	B 7	
			(1-1213)	09-413-814-79 (	: 8		1	
		ď			•			
		182		Indels:	12.08% 4	Match:	Query DB:	

1 TCGCGGCCGAAGCGCCAAAATCCAAGTACGACGTGCGACGTGCGCCTGCGCTTCACTTCATGATGCAACTTCAAGTACGACGTGCGACCTGGCGCTTCCGCTTCATGATGCAACTTCAAGTACGACCTGCCACCTGGATGCAACCTGCCGCTTCCACCTGGATGCAACCTGGACCTGCACCTGGATCGCGCTTCCACCTGATCGACCTGAACCTGGACCTGCACCTGTGATCGCCACCTGGATCGCACCTGATCGCACCTGGATCGCACCTGGATCGCCCACTTCCACCACTTCCACCACTTCCACCACTTCCACCA	RESUUS-OUS-OUS-OUS-OUS-OUS-OUS-OUS-OUS-OUS	p qq	Db :	Qy D	, Q	dg ,	S P	Qy	Db Db	γο,	db Qy	D.	Qy	B · 3		γo	g	VΩ	מם מ	\$ B	γQ	dq	Oγ	ф	γo	ф	Ωy
CGCGGCCG  CGCGGCCG  CCATCTACT CATGA   - - - AspH1sAs  GCCGCGCGCG  - - AlaArgAr  ATGGAAGA   - - - ATGATGAR   -  ATGATGAR   -  ATGATGAR   -	LT 2 9-413-8 9-413-8 quence cent No TERAL II PPLICANT PPLICANT PPLICANT PPLICANT PPLICANT		562	54.5 688	628	25	68 12		494	457									6	9 0	1119	345	1061	335	1001	328	941
	4-78 3, Application US/09413814 6225064 00RMATION: Gessilschaft fuer Biotechnologische Forschung Bristol-Myers Squibb, Co. Beyer, Stefan Bloecker, Helmut	175 589		ArgvalAlaAspArgProvalProva				GGCGTGCCGCCCCCCCAACCCTGGACGCAAACCGCTACA	lyArgGl	TONTONE					lyArgGluAlaProGlyArgValArgArgArgAr	TCGCCCTGCCCGGCCGCCACCTGC		GCTGGAGAGACGC		ProGlyProLeuLeuArgArgAr	CATGATCGGCTCCGACGGCC		TACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGAC	:::	AGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCG		GCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGG

CTCGCAATACGGCCCCACCC 1602	AGGLUPTOARGATGATGGCCCTRCCCTCCGCAGGCCAAACCGGCTACATGGCCCCTCCCTCCGCGAGCCAAACCGGCTACATGGCCCCTCCCGCGCAGCCAACGAAGTGATGGCCGCGCGCG	Oy 1548CCTGGAC  Dy 1548CCTGGAC  Db 711 r9AlaGlyGlyA  Oy 1603 GATATCGTGGGC  Db 730  Qy 1663 ATGACCCTGCAA  Db 740 rg  Qy 1723 GAGGT  Db 753 r9AlaAspAspA  OY 1721 GAGGT  Db 753 r9AlaAspAspA  OY 1721 CTGAGCTACGAG  IIII  Db 773 rOAspValArgA  RESULT 3  US-09-413-814-78  Sequence 78, Applicat  PAPLICANT: Beyer, St  APPLICANT: Gesellsch  APPLICANT: Beyer, St  APPLICANT: Bouldard  Beyer, St
---------------------------	--	--

	Oy Db
7 8 7	Qy Db
507 AUGULTIGUACCAGGTGATGATGATGATGCTGCCGCCAGCAGCAGCACGCGTCCTGCTTGAGCA 908 578	0 B 0 B 1
	рь . оу . рь
VALUCUSUSGAAGGTGCCCCACAGGCGCGCATCGGTGCCACAGGCGCGCTCGT  ValargAspArgAlaAlaProArgGlyAlaAlaAspAspValGlnArgGlnGlyArgArg CGTGCGGCAGGCCGGTCGGAGCCGATCATGGTCGGGCCGAAGGCAGGATGCGCTGCACGT  AlavalProGlyArgArgAlaArgGly	у ф ф ф
475 ValArgAlaAlapı 1243 ATACCGCCGTCTCC 1243 H1sProValArgG1	5
435 ProGlyAlaAspGlyArgGlyAla 1333	O D O D I
399 ArgProArgArg 1396 415 ProGlyAspValPro	Oy Oy Oy
1570 c 1570 c 359 s 1513 - 379 s	o pb o pb o pb

```
В
                                                                                                                                              밁
                                                                                                S
                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-009-782-1 (1-1758) x US-09-413-814-78 (1-882)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TYPE: PRT
; ORGANISM: Sorangium cellulosum
US-09-413-814-78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE: 1999-10-07

EARLIER APPLICATION NUMBER: DE 198 46 493.2

EARLIER FILING DATE: 1998-10-09

NUMBER OF SEQ ID NOS: 107

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 78

LENGTH: 882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide or FITLE OF INVENTION: heteropolyketide compounds FILE REFERENCE: PCT/US 99/23535 CURRENT APPLICATION NUMBER: US/09/413,814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PPLICANT: Mueller, Joachim
PPLICANT: Reichenbach, Hans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPLICANT: Brandt, Petra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPLICANT: Dougherty, Brian A
PPLICANT: Goldberg, Steven L
PPLICANT: Hofle, Gerhard
550 CGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTC 609
                                                                                                                              335 rgArgAlaAlaAlaProProProProSerArgArgArgProThrArgProSerArgProA 355
                                                                                     490 CGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGAAAATCGCGGCCATG 549
                                                                                                                                                                        442 ACCCCGCCGCCCTCA-----ACCCCCCCTGTATGGTGGCCCATTCAACGCTG 489
                                                                                                                                                                                                                   355 rgArgThrProSerArgArgArgArgSerProAlaArgThrProGlyProArgSer--Pr 374
                                                                                                                                                                                                                                                                                                                                                352 GCCAACCCGCCCGCCCCCTGGACCTGCACGAAGGCGGCTCTTACCGTTTCGAGCGC 411
                                                                                                                                                                                                                                                                               412 TTCGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                          292 CAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCAC 351
                                                                                                                                                                                                                                                                                                                                                                                                       328 erGlyArg----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 314 -ArgProProAlaArgSerSerAlaCygArg-------ArgThrArgSer-S 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               232 TCGCACACCACGACGACCAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCG 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      295 uGlyGlnLeuTrpGluAlaGlyHisAlaValAspTrpThrAlaArgProArgGly---- 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148 GCCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCGGGGTCGACGTGTCGGGCC-- 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109 GGGCGGCGCCGACCTGGGCGTGCGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          237 SerAspGlyValGluAlaLeuPheAlaSerGlyHisAlaLeuPheLeuGluValGlyPro 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49 TCCCAGCCTTCGACCTGCTGCTCGCGGGCGCCACCCTCATCGACGGCAGCAACACCCCG 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTGGTCGCCCCGGCTTCATCGAC 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaSerLeuGlySer---ThrHisAlaAlaSerGlu-ProAlaSerLeuAlaGluAlaLe 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyArgGlyLeuThrThrLeuValArgGlnThrLeuAlaGlyArgGlyGlyAlaAlaIle 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.65e~16
344.00
34.68%
29.30%
10.43%
                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                              ------- GluArgPro-- 391
                                                                                                                                                                                                                                                                                                                                                                                                --------GlyThrGlySerA 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GGCGACCGCATC 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
36
214
223
```

•	:																														
νQ	몽	Qγ	р. <b>Q</b>	Db Qy	, B	Qy	탕	δ (	B &	皮	Qy	ДĎ	Qy	рь	γQ	D 4	β	B 1	Q V	뭥	Qγ	망	o y	3 5	2 1	3 5	} B	Qγ	₽	Qy	Db
1498 C	671 r	1447 G	1405 T. 651 a	1345 G 638 F	618	1320 -	598 1	67 G	1207 C	558 r	1150 G	541 1	1093 (	531		15	73	2 1	913 /	1	73	61	37	1 0	<b>,</b>	3 6			405	610	392
AGCCCTT	rgAlaAlaProGlyProArgAlaGlyArgP	GCCAGCA	ACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTT	GTGCCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCGC	galaarg		9Ar	ရှိ	ວ ດ	gGlyPr	AGCGCC	laArgGlyProGlyAlaValProAsp-	AGCGCA	::           lnGlyArgArgAlaValProGl	reerec	:: lArgAs	AACTGA	GASDGlvP	AAGCAGG			Š		AAGGTCA		CIEGAGGAAACCTTCCGCATCGGCCGCGAGCTGGAGCTGGTGATCTCGC		ନ	rgProAlaArgArgLeuAlaArgArgAspProGlyAspValPro	TACCCGC	
ACAATO	ProGly	reccee	CGGCGC         ArgArg	VTACCGC	gArgAla		₽	rcge	rececci	oArgArg	CGCATCC	YProG13	тсстве	 gArgAla	CCGAGC	PArgala	GCGGGC	VPTOA1	Accece	O .		GALBASI	-GCTGA			AAACCT	,	GCGGCA	.aArgAr	200000	pro
cecere	ProArga	ссесете	GCCGGT( GlyProc	CACCTTO     ArgLeu	LeuArg!		galapro/		GTTCCC	GlyGly:	GCGCCT	oGlyAlaValProAs	GTTCGG	ValPro	recaecc	  AlaPro	CGACCT		recuery.	rAlaArg		ProPro	rcaacac	AGCCCA		TCCGCAT		TCTACGO	gLeuAla	ccccc	ProArgArgPro-
ACAATCCGGCGTGAACGGGGC	laGlyA:	CI	TGGCAA       1yG1yA	GAACAC	gAlaLeuArgArgLeuArgAlaGlyProAlaPheProAlaAlaGlyAlaP			3600666	CGACCTGGGCCTGTTCCCCGCTGGAGACGCCGGTATGGAAG	gGlyProArgArgGlyGlyLeuGlyAlaArgProArgGlyG	GTGGGG	ProAsp.	CCCGACC		GGCCGG		GGATGAA				GCTGGA	DATGALASDPTOPTOATGATGPTOALAGTALAGT	CGCCATG		PIG	111 500550	AspPro	ATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCCAAGCACATCGTGG		CACCAC	ro-Arg
G	7	- 1	GAGCAGO        galapi	CCTACCO	rgAlaG		   alarga	CGCGGG	ACGGCG	laArgP	ACCTTO		ATGAT		GCCATC	Arga	GTCGCG	ACGCACC	NO CONTRACTOR	3lnProG	GCGTAT		SCOCOCO	CCGCTCG	WIGHTER	CGAGCTO	ArgAla	CATGCGC	ArgArg/	CGAAGAC	 
   OCCESSOR	g, –	CACGCA	CGTT	3AGCGCG	  yProAl	ccree	rgLeuVa	CAGCTGC	STATEGA	roArgGl	ccecee	ValArgPı	GCTC		TACTTC	     yalaa	GCCGAG	ATCATC	2	::::::::::::::::::::::::::::::::::::::			rgarge	CGCGAG	ТУАТАЬ	GACGIG	laarga	GACGAA	\spProG	SATCATO	rgProA
  CCCCTCCC	laGlyGlyAlaLysAspVa	ceecce	uAspAs <sub>l</sub>	-Argar	aPhePr	ccreereererrceacceeccace	   1GlyAr	AGGCCG	TGGAAGATGACCGGCCTGACCGCC	yGluPr	-	:gProAr	CGACGGCCTGCCGC		ATGATGO	l l LaAspas	ropenen Recept	ACCIGG		inHisp	anger of	OAlavalvalarca	LYALAA	ACGCTG	euProG	CCGGTG	rgArgA	GGCGAG	lyAspv	GAGGTG	Arg
DAAC	aLysAsp	CTGAGO	pGluAla	GCATCC!        SerPro	oAlaAl	TCGACCO	gargLei	GGTACT	000000	::  luProArgAlaVa	TGGGGC	  roArgAlaProArgG	Teccec		ACGAAC			GCAAGO		OValar	SCHOOL SCO		2	:	LYALAAS	GIGATCI	12:	CACATC	alPro-	Tecces	
	Valala		cacc	CCGGCATCCATTCCGTG	161yAla	CGCCAC	HIIIIII Argarg	PALBARS	ATGACCGGCCTGACCGCC	P.	TAT	 	ACGA	-Argarga	CCGACG	n Ar	Alariorroginero	CCTTCC		gglyal     CATec		•	gValPr		· Y	CGCACCAC		этеессесе		CGCTGA	rgLeuLe
- 15		C 14	A – C 14	6 1	. 0	G 13				gp 5	-	lya 5								≫ ·· · C	,	•	ď		gG 4	AC 7	:	CG 7	-		ü –
47 .	ŭ	97	14.6	404 51	38	344	618	310	.266	78	206	58	1149			531	) i	72	3 1	501	2 4		61	136	441	189	128	129	119	Ò	501

```
CURRENT APPLICATION NUMBER: US/09/199,637A
CURRENT FILING DATE: 1998-11-25
PRIOR APPLICATION NUMBER: 60/066,517
PRIOR FILING DATE: 1997-11-25
NUMBER OF SEO ID NOS: 437
SOFTWARE: FastSEO for Windows Version 4.0
SEO ID NO 277
LENGTH: 558
TYPE: PRT
ORGANISM: Pseudomonas aeruginosa
US-09-199-637A-277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 277, Application US/09199637A Patent No. 6355411
                                                                                                                                                                                       APPLICANT: TSONGALIS, JOHN
TITLE OF INVENTION: VIRULENCE-ASSOCIATED NUCLEIC
TITLE OF INVENTION: SEQUENCES AND USES THEREOF
FILE REFERENCE: 00786/361002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-199-637A-277
                                                                                                                                                                                                                                                                                          APPLICANT
                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        857 ArgGlyArgArgLeuValProLeuArgArgAlaGlnGlnArgAlaValProGly 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157 CGATGGCGGCGA---TGCGGTCGCCGCGCACGCCCAGGTCGGCGCGCGCGCGCGGGG 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   837 AlaArgGlyAlaGlyGlyArgGlyAspHisAspGlyValArgLeuArgProHisGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              817 ArgArgGluValArgHisAlaGlnArgAlaArgProProAspGluAlaArgGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   807 GluGly-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       712 AlaGlyGlyAspLeuProLeuHisGlyProAlaArgArgValGlnAlaArgProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           672 AlaAlaProGlyProArgAlaGlyArgProArgAlaGlyGlyAlaLysAspValAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCGACCACCAGGCCCGACACGTCGACCCGGGTGTGCGCGGCGGCGGCGTCCGACAGATCGC 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTGGGTGTGCGAGTCGATGAAGCCGG 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGGCTGATGCCGCAATTGCCCGTGACCACCGTGGTGACGCCCTGCGAGATCTTGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyArgProAspValArgArgAlaGlyProProArgAlaArgArgArgAlaArgGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGACGGCCGGCGTGGCCCGCAACGCGTCCAGGTAGTCGGCGAAGCGCTCGAAACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ValArgAlaProGlyProAlaValArgProAlaArgArgGlyProAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgAspArgAlaAspAspArgLeuLeuArgGlnProAlaArgAlaProAspArgLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cgc--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaHisArgAlaArgGlyProArgArgGlyHisArgArgArgGluProGlu---ProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCATGG----CCGCGATTTCCTCGTCGGTGGCGGCGCGCGCTGCAAGTCCGGCATGACCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAlaAlaGluProArgArgArgGlyArgAlaHisProProAspGlnGlyValLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTGGCGGGGGGGGGGGTAGA-----
                                                                                                                                                                                                                                                                 Drenkard, Eliana
Tsongalis, John
                                                                                                                                                                                                                                                                                                                                          Ausubel, Frederick
Goodman, Howard M.
Rahme, Laurence G.
Mahajan-Miklos, Shalina
                                                                                                                                                                                                                                                                                                                      Tan, Man-Wah
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---AGGCGCCGGTCGAAATGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --GCAGCGTTGAATGGCCCA-----CCATACAGGCGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --GlyArgArgAlaArgAlaProLeu 816
                                                                                                                                                                                                                                             ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----CGGCCAGGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   309
```

```
밁
                                                                                                                     Š
                                                                                                                                                             밁
                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-009-782-1 (1-1758) x US-09-199-637A-277 (1-558)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity: . . Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
             304
                                                                                                                         807
                                                                                                                                                                                                                                     247
                                                                                                                                                                        747 CATCGGCCGGAGCTGGACGTGCCGGTGGTGATCTCGCACCAAGGTCATGGGCCAGCC 806
                                                                                                                                                                                                                                                                        705
                                                                                                                                                                                                                                                                                                                                     240 GluArgLeuValProLeuPro------
                                                                                                                                                                                                                                                                                                                                                                           223 ------ValGlnArgArgAlaProPheAlaArgArgProArgArgSerGluProAla
                                                                                                                                                                                                                                                                                                                                                                                              585 CATCGGCATITCGACCGGCGCGCTCTACCCGCCCGCCGCGCGCGCGCCACCACCGAAGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 205 GlyAlaGlyAlaAlaSerAlaSerAspArgProGlyArgGly------GlySerArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       525 CACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185 ValAspArgTyrProGlyValGluAspAlaArgGlyArgAlaArgGluAlaAlaAlaHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    167 ---ProValAlaAlaGlnGlnGlyAspArgArgGlyAsnArgArgSerGly---PheGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          426 GGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCCATTCAAC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         321 TIGCGGCATCAGCCTGGCGCCCCGCGCACGCCAACCCGCCCCGCCCCCCTGGACCTGCT 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              113 GlyLeuGlyAlaAspProAlaGluAspArgAlaGlyGlnAlaGlyAspGlyGlyGlyAla 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   273 ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108 GGGGGGGCGCCGACCTGGGCGTGCGCGACCGCATCGCCGATCGGCGATCTGTC 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       93 AlaArgAlaArgIleArgArgProArgGlyAspLeuGluValArgGluGlyArgGlyAla 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74 GlyArgArgArgSerHisGlnGluAlaProGly---GlnAlaGlyGlyGlyTyrArgGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54 ThrGlySerSerArgProSerProAspProAlaGluAspArgAlaArgGlyAlaGluGlu 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34
                                                                    LeuGlyGlyProProAspArgArgAlaSerGlyLeuArgArgLeuArgGlyArgArgLeu
ProAspArgGlyAspProProGlnAlaLeuLeuGlyGlyAlaAlaGlyArg-----Gly
                                                                                                               CAATTTCGGCCGCTCGCGCGAGACGCTGCCGCT--
                                                                                                                                             LeuArgTyrArgGlyGly---AlaGlyAlaAspArgTyrValArgValHisGlyGluThr
                                                                                                                                                                                                                       -----ArgProAspArgGlyGlyGlnAspArgValValGlnGlyAlaGlyArgValPro
                                                                                                                                                                                                                                                                   CGAAGGCGAGCACATCGTGGC----
                                               ---GATCGAGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGCGCGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrGlnProAlaAspGlyArg------ProAlaArgGlnAspArgGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaGlnGlyArgProArgGluH1sGlyAlaH1sProValProAspH1sProGlyProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGACGCCGCCGCACAC-----CCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCC 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGACCTGCTGCTCGCGGGCGGCACCCTCAT------CGACGGCAGCAGCAACACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgProAspArgArgGlyArgGlnProH1sProH1sGlyAspArgLeuGlnAlaGlyGly 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------CATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAA 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.22e-13
310.00
35.07%
30.54%
9.40%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -CGCCATGGCGCGCCAGGACGTCTCGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                             CGCGCTGGAGGAAACCTTCCG 746
                                   878
                                                                        303
                                                                                                             839
                                                                                                                                                                                                                         264
                                                                                                                                                                                                                                                                                                  246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                     222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   92
```

```
APPLICANT: Beyer,
APPLICANT: Beyer,
APPLICANT: Bloecker, Helmu,
APPLICANT: Cino, Paul M
APPLICANT: Cino, Paul M
APPLICANT: Dougherty, Brian A
APPLICANT: Goldberg, Steven L
'"DOLLCANT: Hofle, Gerhard
""DOLLCANT: Hofle, Gerhard
""DOLLCANT: Hofle, Gerhard
"""DOLLCANT: Hofle, Gerhard
""""
                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                        JS-09-413-814-79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                              Sequence 79, Application US/09413814 Patent No. 6225064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                              APPLICANT: Gesellschaft fuer Biotechnologische Forschung
                                                                                                                                                                                                                                                                                       1574 CTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAG
                                                                                                                                                                                                                                                                                                                                                   1514 GCGTGAACGGGGCGGCGTGCCGCCCCCCCAACCCTGGACGCAAACCGCTACATGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                       1454
                                                                                                                                                                                                                                                        523 LeuproHisAlaValGluGlyProPheCysArgSerTrpLysLysLys
                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1350 CGATACCGCCACCTTCGAACACCCTACCGA------GCGCGCGCCGCCGCCGCCAT 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1185 GCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATG 1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1056 CGGCGC------CATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCT 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372 ArgargProArgGlyAlaThrCysArgSerAspGlyArgGlyGlnCysAlaLeuProSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     352 ProGlnH1sArgGlyGlyAspAspLeuGlnProArgPheGlyAlaAspProGlyAlaGly 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     322
                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCCAGCCCTTACAATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgLeuArgLeuThrSer-----SerGlyAlaAspArgGluSerProAlaSer
                                                                                                                                                                                                                                                                                                                                                                                     -----AlaGlyLeuPheHisGlyArgPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATTCCGTGT-ACGTCAACGGCGCGCCGGCCTGGCCAAGAGCAGGCGTTCACCGGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ArgGlnIleArgAlaGlyCysGlnTyrLeuGlyGluGlyGlyArgArgArgAsp 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAGGCCGG-----GTACTTCGCCGACCTGGTGGTGTTCGA---CCCGGCCACGGTGGC 1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GinAlaAspCysArgArgLeuArgProGlyLeuTrpArgThrProAlaGlu 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTTGGC-----CGGGCGCGGGGAGCT 1298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGlyHisProAlaLeuAspArgGluProAlaGlyAlaThrAspProGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----GlyArgAlaArgAlaGluProGlyThrGluProGlyGlyAlaGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgArgHisArgArgAspProAlaArgSerProAlaGlnAlaPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGGCACCTTCCC 1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyIleH1sGlnProAspArgArgSerGlyGlyValArgAlaAlaGlySerArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGTT---CGGCCCGACCAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTCGCGGCCGA---GCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGC 1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGluGlyProSerGlyCysIleGlnHisSerProProGlyAlaArg-----GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGG
                                                                                                                                     Bristol-Myers Squibb,
Hans
                                                                                                                                         ဗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---AspArgGlnSerArgAlaTyrGlyGlyLeu 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GAT 1124
                                                                                                                                                                                                                                                             538
                                                                                                                                                                                                                                                                                          1621
                                                                                                                                               Hda
                                                                                                                                                                                                                                                                                                                                                    1573
                                                                                                                                                                                                                                                                                                                      522
                                                                                                                                                                                                                                                                                                                                                                                    517
                                                                                                                                                                                                                                                                                                                                                                                                                   1513
                                                                                                                                                                                                                                                                                                                                                                                                                                                 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               938
```

```
Ş
                                                                                 밁
                                                                                                              Ş
                                                                                                                                                 밁
                                                                                                                                                                             å
                                                                                                                                                                                                             В
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                         ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-009-782-1 (1-1758) x US-09-413-814-79 (1-1213)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Sorangium US-09-413-814-79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patent
SEQ ID NO 79
LENGTH: 1213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide or TITLE OF INVENTION: heteropolyketide compounds

FILE REFERENCE: PCT/US 99/23535

CURRENT APPLICATION NUMBER: US/09/413,814

CURRENT FILING DATE: 1999-10-07

EARLIER EPLICATION NUMBER: DE 198 46 493.2

EARLIER FILING DATE: 1998-10-09

NUMBER OF SEQ ID NOS: 107
                                                                                                                                                                                                                       1357 CGGTATCGGCCACCGTGGCCGGGTCGAACACCACCAGGTCGGCGAAGTACCCGGCCTGCA 1298
                                                                                                                                                                      1297 GCTGCCCGCGCCGGCCA---
                                                                                                                                                                                                                                                                                                          1387
216 AlaArgAlaGlyAspArgValGluLeuGlyProGlyAlaAspGlyAspAlaHisGlyArg 235
                                                             196 ArgArgAspProArgProTyrProArgLeuGlySerGlyAlaLeuAlaArgAlaArgGly
                                                                                                                                                                                                                                                                                                                                                                        1432
                                                                                                                                                                                                                                                                                                                                                                                                                1483 CGGCCGTGCGTGCGAGCACGCGGCCGG------CATGCTGGCCGGTGAACGCCTGCT 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1543 GGAGGGGGGGCACGCCGCCCCGTTCACGCCGGATTGTAAGGGCTGGCGCCCGGGCTCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1579
                                                                                                                                                                                                                                                     138 ValHisGlyAlaAlaGlnGlyArgAspAspArgProProArgArgGlyGluHisGlyPro 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1696 TGCCGCTGGCCTGCGACAGGTCTTGCAGGGTCATTTTCCGGGCCTTGCGCTCGGCGCGCA 1637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                      103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1756
                                                                                                                                                                                                                                                                                                                                                                                                                                               89 ValGiyGiy------ArgArgAspAspArgLeuAlaArgGlyHisArg 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72 AlaproGlnAlaproProGlyAlaArgArgGlyPro-----ProArgProHisAla 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38 ArgArgGlyHisGlyGluGlyLeuGlyAla-----GlyGlyArgArgAlaArgArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18 AlaArgArgGlyAspArgArgGlyGlyLeuAlaLeuArgSerAspArgGluArgAlaArg 37
                                                                                                     TCATCTTCCATACCGCCGTCTCCA----
                                                                                                                           ValAlaGluLeuArgProValGlyLeuArgArgValArgAspAlaArgArgArgArgArg
                                                                                                                                                                                         ArgHisGlnProProLeu-----ArgArgProGlyGlyProGlyAlaArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                AlaPro---ArgArgArgArgGlyArgAlaValAlaArgAlaAlaArgArgAlaProAla 121
                                                                                                                                                                                                                                                                                                                                                  CTTGCCAGACCGGCGCGCGTTGACGTACACGGAATGGATGCCGG------1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGCGCGCCATCACTTCCTTGCCCACGATATCGGGTGGGGCCGTATTGCGAGCGG--- 1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaArgArgArgArgLeuProAlaPro------GlyProSerProProArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTTCTCGTAGCTCAGGGCGATCTGGCCCAGCTCGGCCTTGGACAGGGTCGAGACCGCGA 1697
                                                                                                                                                                                                                                                                                                                  -----AlahrghrgLysHisGlyhrgProGlyLeuArghspLeuHisValhrg 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.73e-13
309.00
32.13%
30.77%
9.53%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cellulosum
                                                                                                                                                                                                                                                                                    ---ACAGGCCCAGGTCGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels:
                                                                                                                                                           -GGCCGAAGCGCGCGGGCGGTCAGGCCGG
                                   -----GCGCATAGTGCC 1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1213
204
9
250
250
35
                                                               215
                                                                                                                                                           1253
                                                                                               1229
                                                                                                                             195
                                                                                                                                                                                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55
```

295 CCTGCGAGATCTTGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTGGGTGT 236	355 TGGCGTGCGCCAGCGGCCAGGCTGATGCCGCAATTGCCCGTGACCACCGTGGTGACGC 296 534 534	397	436 GCAACGCGTCCAGGTAGTCGGCGAAGCGCTCGAAACGGT	466 AGG	526 TGGCGGCGCGCTGCAAGTCCGGCATGACCGCGGCGGCGCAGCGTTGAATGGCCCACCATAC 467        458 GlyArgArgProProGlyAlaAlaAlaGluArgGluArgGlnGlyGlyProArg 475		423GlyArgGluAlaProGlyArgValArgArgArgArgArgArgArgArgAg 437			384 H1sArgProSerGLyGluAspProArgLeuPro 394	931 GCAGCACGCGGTCCTGGAGCATGGTGGAGCCGGCCACGTAGGGATACGCGTCCAGCG 872 	991 GGTCGCGCCCGCTCAGTTCGGGGAAGGGCTTGCACCAGGTGATGATGGTGCGTCCGGCCA 932	1048 GCAGCTCGGGCACCACGTCGTACTTGGATTTGCCGCGCTCGGCCGCGACTTCATCCA 992	1108 ACGCCAGGATGCGCTGCACGTCGGGTTCGTCCATGAAGTAGATGGCGCCGGCCG	1144 GCGGCAGGCCGTCGGAGCCGATCATGGTCG	1195CCAGCACCCGCGGAAGGTGCCCCACAGGCGCGATGCGGGGCGCTCGTCGT 1145	236 ValProArgArgGlyArgProGlyAlaValValAlaProProArgHisAspGluArgArg 255
QY 285 GATCTCGCAGGGGGTCACCACGGTGGTCAGGGGCAATTGCGGCGTCAGCCTGGCGCCCT 344	Qy 231 CTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAA 284        :::	Qy 183 CACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGA 230		QY 63 CCTGCTGCTGCGGGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGGGGG	Gaps: 219-849-6 (1-960)	re: 287.50 Matches: cent Similarity: 35.45% Conservative: t Local Similarity: 30.34% Mismatches: ry Match: 8.71% Indels:	nent Scores:		. H 96	ION I	: DE WOLF, : MOOBROEK : WERTEN, 1 : WIND, RIO	FOR	RESULT 6 US-09-219-849-6 ; Sequence 6, Application US/09219849 ; Patent No. 6150081	Qy 115 GCCGCCCG 107 Db 591 GlyAlaPro 593	QY 175 CGGCGTCCGACAGATCGCCGATGGCGGCGCGCGCGCGCGC	QY 235 GCGAGTCGATGAAGCCGGGGGGGGACCACCAGGCCCGACACGTCGACCCGGGTGTGCGCGG 176	535

	1240   GTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267	문 <b>5</b>
	oGlyProProGlyA	
	560 rArgAspProGlyProProGlyAlaGlnGlyProAlaGlyProGlyGlySerArgAspPr 580	 8. B
	yse 560	γQ
	# 5	₿ <b>%</b>
•	527 ArgAspProGlyProPro-GlyAlaGlnGlyProAlaGly	용 :
	5 9	ov Dp
	50	8 B
	896 CCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACCGATCATCATCT oss	Ϋ́
	77 aGlyProLysGlyAlaHisGlyProAlaGlyProLysGlyAla	B '
	458 pProGlyProProGlyAlaHisGlyProAlaGlyProLysGlyAlaHisGlyProAl 477	0 B
		8 8
	34 AGGAAACCTICCGCATCGGCCGAGCTGACGTGCCGGTGGTGA	3 8
	ω ,	B .
	399 ProhlaGlyProGlyGlySerArgAspPro-GlyProProGlyAlaGlnGlyProAlaGl 418	ę ę
	20 CCGCCGCGCCACCACCGAAGATCATCGAGGTGTGCGGCGGCTGAGCGCGC 6	ş &
	379 AlaGlnGlyProAlaGl	용
	360 ProGiyAlaGinGlyProAlaGlyProGlyGlySerArgAspProGlyProProGly 37	<b>&amp;</b> &
	. 531	Qy
•	*// CCATTURACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGA 53   11	문 5
	326 ProGlyAlaGlnGlyProAlaGlyProGlyGlySerArgAspProGly 34	S B
-, v	423	ρ
	313 GlyProAlaGlyClySerArgAspProGlyPro	. 음 .
2	293 GlyAlaGlnGlyProAlaGlyProGlyGlySerArgAspProGlyProProGlyAlaGln 3	e B
2 1	345 GGCGCACGCCAACCCGCC	VQ.
	b 274 ProProGlyAlaGlnGlyProAlaGlyProGlyGlySerArgAspProGlyProPro 292	문
	-	

	RESI	дь <b>У</b> О	밁	Qγ	뭥	φ.	B 2	5 B	Qy	₽ D	VΩ	<u>В</u>	5 B	: Q · §	밁	ē	멅	Ö
PATENT 14, Application US/07757022B  PATENT NO. 6433142  APPLICANT: Gesner, Thomas G. APPLICANT: Clark, Stephen C. APPLICANT: Turner, Katherine APPLICANT: Turner, Katherine APPLICANT: Hewick, Rodney M.  TITLE OF INVENTION: Megakaryocyte Stimulating Factors CORRESPONDENCE ADDRESS: ADDRESSEE: Genetics Institute, Inc. STREET: 87 CambridgePark Drive STREET: 87 CambridgePark Drive CITY: Cambridge STATE: Massachusetts COUNTRY: U.S.A. ZIP: 02140 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER TIEM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PATENTION DATA; APPLICATION NUMBER: US/07/757,022B  FILING DATE: 1910910 CLASSIFICATION DATA: APPLICATION NUMBER: US 07/643,502 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 07/643,502 PRIOR APPLICATION DATA: APPLICATION NUMBER: US 07/643,502	022B-14	1726 CTGGGCCA 1733          778 laGlyPro 780	758 lnGlyProAlaGlyProGly	1686	38 ysglyAlaglnglyProAlaglyProglyGlySerArqAspProGlyProProflue	1642	b 718 lyProlysGlyAlaHisGlyProAlaGlyBro;::     -	701 roproGlyAlaHisGlyproAlaGlyProLysGlyAlaHisGlyProAlaG	1546 ACCCTGGACGCAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCC	683 у	1487 - GAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGCGCGCGC	663 9AsperoGlyProProGlyAlaGlnGlyProAlaGlyProClimater   111   11   111	1435 CAGGCGTTCACCG	1375 ACCGAGCGCGCCGCCGCATCCATTCCGTGTACGTCAACGGCGCGCCCGGTCTGGCAAGAG	Db 627. ySerArgAspProGlyProProGlyAlaGlnGlyProAlaGlyProGlyGlySerArgAs 647	-CCCGGCCA-CGGTGGCCGATACCCGCCACCTTCCAACAGAGAGAGACTTC		CGGGCGCGGCAGCTGCAGGCCGGTACTTCGCCGACCTGCTCC

```
US-10-009-782-1 (1-1758) x US-07-757-022B-14 (1-941)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Allgnment Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (617)876-5851
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
614 CGCCCGCCGCCCCCCA---CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCG 670
                                  294 ThrThrProLysGluProAlaProThrThrProLys-----GluProAlaProThrThr 311
                                                                      554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCCTTCTACC
                                                                                                                                                                                       271 ThrThrLysGluProAlaProThrThrPro------
                                                                                                                                             494 CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGGCCATGCGGG 553
                                                                                                                                                                                                                                                        251 GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro 270
                                                                                                                                                                                                                      443 CGCCGGCGG------CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                             383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                                                                                                                                                                   323 GCGGCATCAGCCTGGCGCCGCGCGCACGCCAACCCGCCCCCCCTGGACCTGCTGG 382
                                                                                                                                                                                                                                                                                                                                                                                                               229 AlaProThrThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                          263 GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     203 GCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: GI
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217 ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           202 ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCACACCCCGGGTCGACGTGTCGG 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187 ThrLysSerAlaProThrThrProLysGluProAlaProThr....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
FILING DATE: 08-AUG-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 29-JUN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 31,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H: 941 amino acids
AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cserr, Luann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UMBER: US 07/390,901
08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            יייאר: US 07/457,196
29-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.45e-12
285.50
33.50%
23.30%
8.65%
                                                                                                           ---LysGluProAlaProThrAlaProLysLysProAlaPro 293
                                                                                                                                                                                                                                                                                                                                                                                                        ----ProLysGluProAlaPro----- 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                                                                                                                                                                                               --ThrThrProLysLysProAlaProThrThrProLys 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    941
137
60
240
151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----Thr 201
                                                                          613
                                                                                                                                                                                   280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228
```

Y 1685 AGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC 1732	Qγ
b 572LysGluProAlaProThrThrProLysGlyThrAlaProThrThrLeuLys 588	B
NY 1625 TGGGCGCGCGCCGCGCGCGAACGCCCAAGGCCCGGAAAAATGACCCTGCAAGACCTGTCGC 1684	Ϋ́
561 ThrThrProLysGluProAlaProThrThrPro	Dъ
1565 ACATGGCCCCTCCCCTCCGCTACCGATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1	Qy
546ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro	Db
1505 TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCCCCAACCCTGGACGCAAACCGCT 1	ٍ ٧٥
529 ProAlaProLysGluLeuAlaProThrThrThrLysGluProThrSerThr	ממ
1445 CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCGAGCCCT 1	Qy
510 ProLysGlyThrAlaProThrThrLeuLysGluProAlaProThrThrProLysLys	. B
1385 CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGGCCGGTCTGGCAAGAGCAGGCGTTCA 1	Qy
490 AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr	Дb
1328 TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCG 1	Qy .
4	망
GGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 13	· ογ
470	Дb
1208 GCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1	γo
	ф
0y 1148 ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGC 1207	. Ao
	Дb
_	. Qy
452	Дb
CCGGCGCCATCTACTTCATGATGGACGAACCCGACG 1	Qy
434	Db
	Qy
	Db
-	Qγ
	מַם
CCACCATGC 91	γQ
-	дb
CAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG 85	ν
	Db
7	Qy Y
	D . 1
671	
Db 312 ThrLysGluproSerProThrThrProTysGluproThrThrThrProTysGluproThrThrThrProTysGluproThrThrThrThrThrThrThrThrThrThrThrThrThrT	Ф

밁

```
US-10-009-782-1 (1-1758) x US-07-757-022B-84 (1-1022)
                                                                                                                                           Query Match:
                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                       US-07-757-022B-84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
US-07-757-022B-84
                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (617)876-585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 84, Application US/07757022B Patent No. 6433142
                                                                                                                                                                                                         No.:
                                                                                                                                                                                                                                                            TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 1022 amino aci
      248 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr 267
                                       32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION: TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC:DOS/MS-DOS
SOCTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 31,822
REFERENCE/DOCKET NUMBER: GI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 07 FILING DATE: 29-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 0'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              589 GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DDRESSEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGATCGCCCTGAGCTACGAGAAGC 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LysGlyProThrSerThrThrSer 616
                                                                                                                                                                                                                                                                                                   AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cambridge
                                                                                                                                                                                                                                                                                                             1022 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Massachusetts
                                                                                                                                                                                                                                                                                                                                                             (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87 CambridgePark Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gesner, Thomas G. Clark, Stephen C. Turner, Katherine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O8-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-DEC-1989
                                                                                                                               6.58e-12
285.50
33.50%
23.30%
8.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rodney M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Megakaryocyte Stimulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 07/546,114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/457,196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 07/643,502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/07/757,022B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Institute,
                                                                                                                                                                                                                                                                                                                                                 84:
                                                                                                                                                                                                                                                                                                                                                                                                            5190
                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inc.
                                                                                                            1022
137
60
240
151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Factors
                  밁
                                                                                 밁
                                                                                                              ğ
                                                                                                                                                문
                                                                                                                                                                              Ş
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                           1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG----GCTCCGACGGCCTGCCGCACG
                                                                                        1031 ACGTGGTGCCCGAGCTGCAGCCGGCGGCGCCATCTACTTCATGATGGACGAACCCGACG 1090
534 ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr---
                                                                                                                                                      971 CCGAACTGAGCGGGGGGGGCGACCTGGATGAAGTCGCGGGCGAGCGGGGCAAATCCAAGTACG 1030
                                                                                                                                                                                     476 ProThrThrtysLysProAlaProThrAlaProLysGluProAlaProThrThrPro 495
                                                                                                                                              496
                                                                                                                                                                                                                     911 TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCC
                                                                                                                                                                                                                                                     456 LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla
                                                                                                                                                                                                                                                                                    851 CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC
                                                                                                                                                                                                                                                                                                                              447 ProLysGluProAlaPro----
                                                                                                                                                                                                                                                                                                                                                    791 AGGTCATGGGCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                        731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                671 CGCATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGGACATCGTGGCCGCGC 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                  413 ProThrThrThrLysGluProAlaProThrThrThrLysSerAlaProThrThrProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 393 ThrLysGluProSerProThrThrProLysGluProAlaProThrThrThrLysSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               614 CGCCCGCCGCCCCA----CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCG 670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            362 -----LysGluProAlaProThrAlaProLysLysProAlaPro 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  352 ThrThrLysGluProAlaProThrThrPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           494 CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACGAGGAAAATCGCGGGCCATGCGGG 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           443 CGCCGGCGG------CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     203 GCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACGACAACTACCTGCTCK 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          310 AlaProThrThr -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    268 ThrLysSerAlaProThrThrProLysGluProAlaProThr------Thr
                                                                                                                        LysGluThrAlaproThrThrProLysLysLeuThrProThrThrProGluLysLeuAla 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92
                                                                                                                                                                                                                                                                                                                                                                                   GluProSerProThr------ThrThrLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                  TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrThrProLysGluProAlaProThrThrProLys-----GluProAlaProThrThr 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGCAGCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ThrThrProLysLysProAlaProThrThrProLys 331
                                                           ---GluLysProAlaProThrThrProGluGluLeuAlaProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---ProLysGluProAlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                                                                                                                                                                                      ---ThrThrPro
```

412

613

361

351

319

297 202 282 142

Ş

1147 533

970 475 910

밁 Ş

550

551

1148

ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGC 1207

```
COMPUTER: IBM PC COMPUTER SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/757,022B
FILING DATE: 19910910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1625 TGGGCGCGCGCCTGCGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1505 TACAATCCGGCGTGAACGGGGCGGCGTGCCCCCCCCCCAACCCTGGACGCAAACCGCT 1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1268 CGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           670 GluproAlaproThrThrProLysLysProAlaProLysGluLeuAlaproThrThrThr 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      642 ThrThrProLysGluProAlaProThrThrPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1328 TGTTCGACCCGGCCACGGTGGCCGATACCG---CCACCTTCGAACACCCCTACCGAGCGCG 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1208 GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        552 LysAlaAlaAla---ProAsnThrProLysGluProAlaProThrThrProLysGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG------CCGAGCTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProLysGlyThrAlaPro---ThrThrLeuLysGluProAlaProThrThrProLysLys 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ProLysGluLeuAlaProThrThrLysGluProThrSerThr---
                                                                                                                                                                                                                                                                                                                                                                           Megakaryocyte Stimulating Factors: 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               550
                                                                      밁
                                                                                                        Š
                                                                                                                                                                                    Š
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-009-782-1 (1-1758) x US-07-757-022B-74 (1-1038)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-07-757-022B-74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: (617)876-5851
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: 11
  554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGACCGGCGCCCTTCTACC
                                                                                                          494
                                                                                                                                                336
                                                                                                                                                                                                             316 GluproAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                                                                                                                                                                                   383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA
                                                                                                                                                                                                                                                                                                                                           323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                        263 GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCGGGTCGACGTGTCGG 202
                                                                                                                                                                                                                                                                                                       304 --
                                                                                                                                                                                                                                                                                                                                                                             294 AlaProThrThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       252 ThrLysSerAlaProThrThrProLysGluProAlaProThr----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             232 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: CSETI, LUAND
REGISTRATION NUMBER: 31,822
REFERENCE/DOCKET NUMBER: GI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 18-JAN-
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92 ACGCCAGCA-----ACACCCCGGGGGGGGGGGGGGGGACCTGGGCGTGCGCGGGGACC 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 07/390,901 FILING DATE: 08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENGTH:
                                                                                              CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAAATCGCGGCCATGCGGG
                                                                                                                                          ThrThrLysGluProAlaProThrThrPro
                                                                                                                                                                                                                                                                                                                             GCGGCATCAGCCTGGCGCGCGCGCAACCCGAACCCGCCCCCCTGGAACCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1038 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        UMBER: US 07/457,196
29-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-JUN-1990
                                                                                                                                                                        -----CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.61e-12
285.50
33.50%
23.30%
8.65%
                                                      ---LysGluProAlaProThrAlaProLysLysProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US 07/546,114
                                                                                                                                                                                                                                                                                                                                                                         ----ProLysGluProAlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74:
                                                                                                                                                                                                                                                                                         -ThrThrProLysLysProAlaProThrThrProLys 315
                                                                                                                                                                                                                                                                                                                                                                                                                                            \cdot \texttt{ThrThrLysGluProAlaProThrThrThrLysSer}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1038
137
60
240
151
Thr
                                                                                                553
                    613
                                                                                                                                                                                                                                                       442
                                                                                                                                      345
                                                                                                                                                                                                               335
                                                                                                                                                                                                                                                                                                                                 382
                                                                                                                                                                                                                                                                                                                                                                     303
                                                                                                                                                                                                                                                                                                                                                                                                                                                293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91
```

RESULT 9 US-07-757-022B-74

1733 AGATCGCCCTGAGCTACGAGAAGC 1756

690 LysGlyProThrSerThrThrSer 697

1685

653

1565

627

1385

571

591

610

Sequence 74, Application US/07757022B Patent No. 6433142

INFORMATION:

ITLE OF INVENTION: MEIUMBER OF SEQUENCES: 1

PPLICANT: Gesner, Thomas G.
PPLICANT: Clark, Stephen C.
PPLICANT: Turner, Katherine
PPLICANT: Hewick, Rodney M.

COMPUTER READABLE FORM: MEDIUM TYPE: Floppy

E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS

US 07/643,502

COUNTRY: U ZIP: 02140

U.S.A.

CITY: Cambridge STATE: Massachusetts

STREET:

E: Genetics Institute, 87 CambridgePark Drive

Inc.

ADDRESSEE:

Ş

Ş 밁 Ş 밁 S 밁 S 8

CCGAGCTGGGCC 1732

```
1625 TGGGCGCGCGCGTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684
                                                                                                          1565 ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624
                                                                                                                                                                                      1505 TACAATCCGGCGTGAACGGGGCGGCGGCGCCCCCCCCCAACCCTGGACGCAAACCGCT 1564
                                                                                                                                                                                                                                                                                                    575 ProLysGlyThrAlaPro---ThrThrLeuLysGluProAlaProThrThrProLysLys 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1268 CGCGCTTCGGCCTGGCCGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1208 GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCG 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1148 ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGCCACTATGCGC 1207
                                                                                                                                                                                                                                                                                                                                                                             555 AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG---GCTCCGACGGCCTGCCGCACG 1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG 1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  518 ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480 LysGluThralaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          460 ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              911 TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCATCATCATCACCTGGTGCAAGCCCTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 440 LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    851 CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC 910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731 TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      431 ProLysGluProAlaPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             791 AGGTCATGGGCCAGCCCAATTTCGGCCGCGCGCGAGACGCTGCCGCTGATCGAGGCCG 850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         397 ProThrThrThrLysGluProAlaProThrThrThrLysSerAlaProThrThrProLys 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671 CGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  377 ThrLysGluProSerProThrThrProLysGluProAlaProThrThrThrLysSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       614 CGCCCGCCGCCCCCCA----CCACCGAAGAGATCATCGAGGTGTGCCGGCCGGCTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359 ThrThrProLysGluProAlaProThrThrProLys-----GluProAlaProThrThr 376
 -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys 653
                                                                                    ThrThrProLysGluProAlaProThrThrPro---
                                                                                                                                                                                                                                                                 CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGGCGCCAGCCCT 1504
                                                                                                                                                                                                                                                                                                                                        CCGCCGGCATCCATTCCGTGTACGTCAACGGCGGCGGCGGTCTGGCAAGAGCAGGCGTTCA 144
                                                                                                                                                                                                                                                                                                                                                                                                                 TGTTCGACCCGGCCACGGTGGCCGATACCG---CCACCTTCGAACACCCTACCGAGCGCG 1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lysalaalaala---ProasnThrProLysGluProalaProThrThrProLysGluPro 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProThrThrPro-----GluLysProAlaProThrThrProGluGluLeuAlaProThr 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCGAGCGCGGCAAATCCAAGTACG 1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluProSerProThr--------ThrThrLysGluProAlaProThrThr 430
                                                                                                                                                   -----ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                                                                                                              -ProLysGluLeuAlaProThrThrThrLysGluProThrSerThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrThrPro 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----Pro 535
                                                                              636
                                                                                                                                                       625
                                                                                                                                                                                                                              610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         670
US-10-009-782-1 (1-1758) x US-07-757-022B-58 (1-1049)
                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                           Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 10
US-07-757-022B-58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭥
                                                                                                                                                                                                                                                                                                                TELEFAX: ((
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 58,
                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: GI
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
FILING DATE: 08-AUG-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Hewick, I
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                  TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1733 AGATCGCCCTGAGCTACGAGAAGC 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Gesner, Thomas G.
APPLICANT: Clark, Stephen C.
APPLICANT: Turner, Katherine
APPLICANT: Hewick, Rodney M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1685 AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG---
                                                                                                                                                                                                                                                                                                                                                  TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 29-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 18-JAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 19
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS OPERATE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            654 GluProAlaproThrThrProLysLysProAlaproLysGluLeuAlaProThrThrThr 673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysGlyProThrSerThrThrSer 681
                                                                                                                                                                                                                                                   AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cambridge
                                                                                                                                                                                                                                                                                                                                                                                                                          Cserr, Luann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a, Application US/07757022B
6433142
                                                                                                                                                                                                                                                                       1049 amino acids
                                                                                                                                                                                                                                                                                                                                  (617)87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87 CambridgePark Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U.S.A.
                                                                                                                                                                                                                                                                                                            SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genetics Institute, Inc
                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          UMBER: US 07/546,114
29-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-JAN-1991
                                                              6.63e-12
285.50
33.50%
23.30%
8.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Megakaryocyte Stimulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 07/390,901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 07/457,196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 07/643,502
                                                                                                                                                                                                                                                                                                                                                                                                     31,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/07/757,022B
                                                                                                                                                                                                                                                                                                            58
                                                                                                                                                                                                                                                                                                                                                                                   5190
                                         Conservative: Mismatches: Indels: Gaps:
                                                                                                                  Length:
Matches:
                                     1049
137
60
240
151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Factors
```

맑 õ 밁 Ş 밁 Ş

637

626

1445

594

1385

1328

536

535

534' --

500

RGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACG 1147	TGCAGCGCATCCTGGC	1091	
ACGYGGYGCCCGAGCTGCAGCCGGCCGCGCCATCTACATGATGACGAACCCGACG 1090	ACGIGGIGCCCGAGC	543	
 LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla 542		523	
522		971	
TCAAGCAGGACCGCGTGCTGGCTGGCGGACGCACCCATCATCATCACCTGGTGCAAGCCCTTCC 970	э на	911 503	
yslysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla 502	LysLysProAlaPro	00	•
4	O . 111	474 851	•
GCGAGACGCTGCCGCTGATCGAGGCCG 8	-	791	•
ThrThrThrLysGluproAlaproThrthr 473		σ	J
THE PROCESS OF THE PR		731	•
نسا		671 440	0 ~
4		420	٥.
	င္ထ	614	~
CTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACC 613	11-2	402	σ 4
40	:	389	Ф
3666 5	Ω	494	¥
		379	σ
င် င် င်	a	443	4
	ດ	359	õ
	<b>5</b> 2	383	~
ThrThrProLysLysProAlaProThrProLys 758		347	ŏ
GCGCCGCTTGGCGGACCGCAACGGGGGGGGGGGGGGGGG	9000	N (	₹
ATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322	3 GGCC	a 20	ž ~
 LysSer 3		N	9
FGCTCA 2	GCC	203	¥
ThrLysGluProAlaproThrThrProLysGluProAlaProThr 324		310	b
101000	GCATCGCCGCCAT	143	¥
ACACCCCGGGCGGCGCGCGCCGACCTGGGCGTGCGCGGCGACC 142	ThrLysSerAlap	295	8 7
" I'III ITELYSSETALBPTOThrThrProLysGluProAlaProThrThr 294		! م	2
CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTGCGGGGGGGG		27 27	8 8

							,		-				
RESULT US-07- Sequ Pate GEN A A A A A CC CC	β Q	₽ 5	D Oy	B 6	) B 2	B 8	, ₽ 0 <u>4</u>	, B 2	Q B .	Ş B	δ 6	, 15	. <b>D</b> b
SULT 11  O7-757-022B Sequence 104 Patent No. 6 GENERAL INF GENERAL INF APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT APPLICANT COMPUTER 1 COMPUTER 1 COMPUTER 1 COMPUTER 1 COMPUTER 1 APPLICAN APPLICAN APPLICAN APPLICAN APPLICAN APPLICAN	1733 717	697	രത്	699 595T	65 6	1.00.4	618	598	579	578	1208	1148	561
104 104 104 104 106 106 107 107 107 107 107 107 107 107 107 107	AGATCO ::: LysGly	AGGCCAGCG         GluProAla	Teecce	ACATG	TACAA	CCGGC	ProLy	AlaPr	Lysal Lysal		GCGACC		
ASSESS B SELOG MESHBUILD	SGCCCTG/  - - -  yProThi	Pr	9 9	GGCCCCTO     hrProLy:	TACAATCCGGC	CAGCAT	CCGGCATCC ::: LysGlyThr	HILL HII AlaproThrThr	TOTTCG CCC		CTGGG	CGCCCC	:0G1uG1
FOR Set	AGATCGCCCTGAGCTACGAG :::     :::    LysGlyProThrSerThrTh	-GCATCG	CCTGCGC        LuProAl	CCCTCC      SGluPr	GTGAAC    Th	GCCGGC     -ProLy	CCGCCGGCATCCATTCCGT	AlaproThrThrProLysG1	lapr		CTGTT	CATCC	LuProT
Thomas G. Stephen C. Ratherine Rodney M. Megakaryocyt: 143 ESS: 163 Institute, idgePark Drive etts ORM: pc-DOS/MS-DO: DATA: R: US/07/757,(19910	TGAGCTACGAGAAGC::::        	Pro	GCCGAG	GCTCGC   OAlaPr	GGGGCG      SerAs	CGCGTG sGluLe	CGTGTACG	- 6	OASDT)		CCGCTC	CGCCT(	hrProT
	1756	GCATCGCGGTCTCGACCCTGTCCAAGGCCGAGC ;;;	CTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTG 	CCTCCCTCCGCTCGCAATACGGCCC	ACGGGGCGGCGTGCCGCCCTCCCAACCCTGGA     :::      :::     ThrSerAspLysProAlaProThrThrProLysG	CGGGCCAGCATGCCGGCCGGCGCGTGCACGCACGCCACGCCCTGAGCCCGCGGCGCCAGCCCC	GTCAAC  ::: LThrLe	GCCGATACCG         uProAlaPro	urProLy		GAGACO.	3TGGGG	ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr
Stimu oc.		CTGTCC	GCCCGG	GCCCCA     rPro	CGCCCCC         OAlaPro	CGCACG	TCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTC ;;; ThrLeuLysGluProAlaProThrThrProLysLy	Thr	SGluPr		10000 P	CACCTTO	roGluG:
ting		AAGG  ::: oLysGl	AAAATG   YThrAl	CCCGAT	CTCCCA  ::: oThrTh	GCCGCC ThrLy	CCGGTC::	ACCITO       TPTOLY	oAlapı			ccece	l luProA
Factor		LeuAl	ACCCTG	ATCGTG	ACCCTG     rProLy	TGAGCC        sGluPr	TGGCAA : aProTh	GAACAC	TACTTC    :: oThrTh			GTGCT	  aProT]
<b>vi</b> · .	• .	-CCGAG	CAAGACC	GGCAAG	GACGCA SGlyTh	CGGCGC   :: oThrse	GAGCAG ::: rThrPr	CCTACC	GCCGAC :    rProLy			3GGCA	rThr-
		CCGAGCTGGGCC    ::: ProThrThrThr	CAAGACCTGTCGC	ATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 	GTGAACGGGCGGCGTGCGCCCCCCCAACCCTGGACGCAAACCGCT 	CAGCCC	GTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA    ::  ThrThrLeuLysGluProAlaProThrThrProLysLys	CCACCTTCGAACACCCTACCGAGCGCG        ::: ThrProLysGluThrAlaProThrThr		14br	TGGGCCTGTTCCCGCTGGAGACGCTATCCAACATCAACATCAACATCCAACATCCAACATCCAACATCCAACATCCAACATCCAACATCAACATCCAACATCAACAA	acgaccccccatccccctgtgggcaccttcccccgcgggtgctgggcactatgccc	
		1732	1684	A 1624 - 679	T 1564	T 1504	A 1444	G 1384	G 1327	0 578	577	C 1207	- 577

B 64	문	Qy .	8 B	5 B 7	5 B 5	ρ φ 9	₽ Q	. B &	. US-1	Align Pred. Score Perce Best Query DB:	Q
494 C	0	450 G			203 G		386 5		- 009-	Alignment Pred. No.: Score: Score: Percent Si Best Local Query Matc DB:	CLASSIF PRIOR APP PRIOR APP FILICA FILING PRIOR APP APPLICA FILING PRIOR APP ATTORNEY, FILEFAX INFORMATION SEQUENCE LENGTH: TYPE: 1 TOPOLOGI MOLECULE 1 TYPO-022B
CGCGGTCATGCCGGACTTGCAGCGAGGGCCCACGACGACGAGGAAATCGCGGCCATGCGGG           LysGluProAlaProThrAlaProLysLysProAlaPro	ThrThrLysGluProAlaProThrThrPro-	GluproAlaProThrThrProLysGluproThrProThrThrProLysGluProAlaPro CGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGTGCGC	ACGAAGGCGCTTTACCGTTTCGAGGCTTTTCGAGGCTTCGACCGTTTTACCGTTTTTTTT	THE THE TENEBUL CHANGATCT COCAGGGGGTCACCGGTGTCACCGGGCATT  AlaproThrThr	GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGACGACAACTACCTGCTCA :::   :::	GCATCGCCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGG	ACGGCAGCAACACCCCGGGGCGGCGCGCGCGACC 	CCATGTCCCAATCCGATTCCCAGCCTTCGACCTGCTGCTGCTGGCGGGGGGCACCCTCATCG	782-1	ment Scores: No.: Int Similarity: Local Similarity: Match:	PACK HE HERBERS SEEDED DE DE DE DE DE DE DE DE DE DE DE D
ATGCCGG	: sGluPro	aProTh	GGCTCT	roThrThr	GTCGCG	TCGCCGCCATCGGCGA    ::: -LysGluProAlaPro-	CA :: erAlaPr	CCAATC	(1-1758)	rity:	FICATION: 5: PLICATION NOMBER: ATION NOMBER: DATE: 18-79 PLICATION DAI ATION NOMBER: ATION NOMBER: DATE: 29-DE PLICATION NOMBER: DATE: 08-AU PLICATION NOMBER: OR AU PLICATION NOMBER: OR AU PLICATION NOMBER: OR AU PLICATION NOMBER: OR AU PORE: (61)876-7 X: (61)876-7 X: (61)876-7 X: FOR SEQ ID CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST CHARACTERIST 1140 amino AMINO ACID AMINO AC
ACTTGC	AlaPro	ThrPro	PACCETT	ACGCCCA	CCCGCT	GGCGATC	oThrTh	GATTCC      rileLy	-SD ×	6.77e-: 285.50 33.50% 23.30% 8.65%	ATION: 530  CATION DATA:  ON NUMBER: US 07/1  TE: 18-JAN-1991  CATION DATA:  ON NUMBER: US 07/2  CATION DATA:  ON NUMBER: US 07/4  CATION DATA:  ON NUMBER: US 07/4  CATION DATA:  ON NUMBER: US 07/4  E: 29-DEC-1989  CATION DATA:  ON NUMBER: US 07/4  E: 08-AUG-1989  NT INFORMATION:  ON NUMBER: US 07/4  E: 017)876-1170  (617)876-1170  (617)876-1170  (617)876-1170  (617)876-1170  (617)876-5851  ATION INFORMATION:  RACTERISTICS:  140 amino acids  NO ACID  linear  E: protein
AGCGCGC   LysGlup	ChrThr	LysGluf TCAACGC	TCGAGC	Proj	TCATCG	TGTCGG	ACCCCGG     ::: rProLys	CAGCCCI      SSerAla	07-757-	12	Q 75 1 2 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
AGCGCGCCGCCACGACGAGGAAATCGCGGCCATGCGGG             LysGluProAlaProThrAlaProLysLysProAlaPro	ro	:::	AGGGGTTCGCGATTACCTCCCCTGGACCTGCTGGACCTGCTGGACCTGCTGACCTGCTGACCTGCACTGACCTGCACCTGCACCGACCTGCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCGATTACCACCACCGATTACCACCGATTACCACCGATTACCACCACCACCACCACCACCACCACCACCACCACCA	TCTCGCAGGGCGTCACC.::: ProLysGluProAlaPro	ATCGACTCGCACACCCACGACGACAACTACCTGCTCA :::   :::     -ThrThrLysGiuProAlaProThrThrThrLysSer	GACGCCGCGCGCACACCCGGGTCGACGT     	ACACCCGGGGCGGCGCGCCGACCTGGGCGTGCGCGGCGACC       ::: 	TCGACC	022B-104	Length: Matches: Conserva Mismatch Indels: Gaps:	07/643,502 07/546,114 07/457,196 97/457,196 97/390,901 9 07/390,901 104:
CGACGAG       roThral		IIIIIII FOTHITH TATGGTG	YSLYSPro	CGTCAC	CACCCA	CCGCGCA    ::: ProLysg	GCGCCGA	TGCTGCT	04 (1-1140	. es	
GAAATC aProLy		MFPTOLY	COLLAPT CONTRACTOR	CACGGTG	CGACGAO	CACCCG	pr	.ceceee	140)	114 137 .ve: 60 :: 240 :: 151	
GCGGCC! :::    sLysPrc		SGLUPTO FCAACGO	CTGGAC	GTCACG	AACTAC        urthrth	GGTCGAC     aProTh	CGTGCGG	CGGCAC		10 770	
ATGCGGG   DAlapro	- 6	CGGGCCA     OAlaPro	CTGCTGC	GGCAAT	CTGCTC    - 	ererce 	GGCGACC	CCTCATC		•	
492		469			A 262	G 202 - 415	C 142	16 91 1 385			
				•						٠.	

D Q	망	ργ	B :	9 5	ļ Q	뮻	οy	Db.	γQ	문	δō	밁	ν Q	. 10	a	Η.			^		_		_		_								
Д	•	-		_		_	Ϋ́ 1	σ.		φ,		ō		В	VΩ	Ď.	Qγ	당	δĀ	В	δĀ	D	Qγ	용	δĀ	용	δ	B	δÃ	B	γQ	문	γQ
760 7	. \$	505		445	85	68	328	670	1268	669	1208	899	1148	652	1091	634	İ£01	614	971	594	911	574	851	565	791	551	731	531	671	511	614	49	554
ACATGGC	i	TACAA	TOTAL   THE CONTROL OF THE CONTROL	ATOTA	CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA	AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThr	TGTTCGACCCGGCCACGGTGGCCGATACCG	:::   :::	CGCGC		GCGACC	:	ACGA	ThrP	TGCA	ProT	ACGTGG	LysG	CCGA	ProT	TCAA	Lysı	CCAT	Pro	AGGT					н		3 Thr	
GCCCC		rccee	a	SGLY	GGCAT	oThr	GACC	l:::	TICG	;	ភ		30600	ProGlu	CAGCGCATCCTGGCG	OThrThrPro	GGTGC	luTh	CGAACTG	hrTh	GCAG	ysPr	GGCG	ysG1	CATG	roSe	AGGAA	roThrThrThr	ATGGC	ThrLysG1	cccc	Threi	TGGC
roLysGluPr		cerc,	Pr	TATAL	CCAT	ThrPr	20000	Ala	CCTO		GCCTG		CGCA	Glup	TCCT	Pro-	CCGA	CALAP	AGCGG	Thri-	SACCG	OAlar	45555	uPro#	<b>1</b> 0000	erProThr	ACCTS	rThr)	GGCA	uPro	, GCCC	OLys	GAGG
CCCCC	-Thrs	AACGG	oriae J	aPro-		OLys(	Acces	-Proj	6000 6000		TTCC		rcccc	roThr	3GCGT		GCTGC	roThı	GCGCG	узҍуз	CGTG	::: LysProAlaProThrThrP	GAC	:::    -LysGluProAlaPro	, 10000	ř:	CCGC	УзG1	CTAC	SerPr	- ADD BD BD BD BD BD BD BD BD BD BD BD BD B	GluPr	AAGCC
ATGGCCCTCCCTCCGCTCGCAATACGGCCCCAC 	::: erAspLys	ACAATCCGGCGTGAACGGGGGGGGGGGGGGGGGGCGCCCCCCAACCCTGGACGGAAACCG	<pre>GCCGCCTGAGCCC H     </pre>		GTAC	HuPr	0000	snTh	i GCGC		CGCTG		GCCTO	ProT	TCGG	rProGluLysProAlaProThrThrProGluGluLeuAlaPro	AGCC	LysGluThrAlaProThrThrProLysLysLeuThrProThrThrP	AGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAG	ProA	TGCT	ThrP	STCTC	-	AATTT		ATCGG	 	GCCAC	H,	A(	OAlai	ATGG
ATAC	::: Lysp:	CGTG	Alap	cThrL	GTCAA	OAlaP	GATAC	rProI	<del>ໃ</del> ວຄອອ		GAGA.		TGGG	rThr	CCGA	SPro.	30006	roLys	GGATG	laPro	- -	roLys	GCTGG		ceeco		cccc	laPro	CCAC	hrPr	CCACCGAAGAGATCATCGAGG	ProTh	CAGC
GCCC     	ProAlaP	င်င်ငင	ACGCA roThr	euLys	Sobo	roTh	G	ysGlı	GCTG	. 6	i de la composición dela composición de la composición de la composición dela composición de la composición de la composición dela composición dela composición de la composición de la composición de la composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición dela composición dela		3CACC	ProGL	CCATG	AlaPr	GCGCC	LYBLe	AAGTO	Thrai	GACGO	GluPı	ACGC		CTC		SAGCT	Thri	ATGCG	OLYSG	GAAGA	rThr 	GCGC
CACCC	::: AlaProThrThr	CCCTC	ThrT	GL uP	cecc	ThrP	-ccAc	1ProA	AGG		1 THE PER CO.		TTCC	uGlul	ATCG	OThr	ATCT	uThr	GCGG	aPro	CACCA	roAla	STATC		ecece ecece		GGAC	hrîhi  -	CGAC	luPro	GATC	roLy:	CATC
GAT	uThr ::	CCAA	ecci arLys	roAla	GGTCI	roLys	CTTC	lapro		- CAAG			GCGG	ProAl	GC	ThrPr	ACTIC	ProTh	CCGAG	LysG1	TCATO	ProT	CCTAC		AGAC	i Thr:	iii ccc	Lyss.	AAGG	HALAP	ATCGA	9	GGCAI
ATCGTG	ProLy	CCCTC	GAGCC	ProT	GGCA	Gluzi	AACA	The C	4	AT GAC			GIGCI	aPro]	TCCG	oG1u0	ATGA	rThr!	cece	uPro.	ACCT	nghr 	GIGG		CTGC	es VsGlu	GGTGG	erAla	CGAGO	roTh	GGTG	61	TTCG
TGGGCAJ	'sGly	GACG	cceece	hrThr	AGAGO	hrala	CCCTA	HEPro		Ceeco			GGGG	)  -  -	5995	luLe	ດ	н	GCAAA	Alapr	GETGC	ProLy	ccec		CGCT	ProA:	TGAT	ProThr	ACAT	Thri	racca .	ProA	ccaa
AAGGAAGTGA	 oLysGlyThrAl	CAAAC	GCCAGC :::::: SerThr	ProL	AGGC	ProT	CCGA	DEVIG		TGAC			CACTA	-	CIGCO	uAlaE	GAAC	uLysı	TCCA	OI.	AAGC	'sGlu	HCCA	Thr.			3000	hrThrP	2000	hr Lve	TOTAL CONTRACTOR TOTAL	3000	CGCCT
GTGA	9	CGCT	CCCI	/sLys	TTCA	Thr	CCACCTTCGAACACCCTACCGAGCGCG	Lupro	014	111 111 1110			GAGCGCCCCCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGC	luGluProThrProThrProGluGluProAlaProThrThr	GCAC	:::    oThrThrProGluGluLeuAlaProThr	CGACG	oGluLysLeuAla	GTACG	ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro	CTTC	roLysGluProAlaProThrThrProLysGluProAla	CATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC	ThrThrPro	CATGGGCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTGCCTGC	-ThrThrLysGluProAlaProThrThr	TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCCCACACA	ProLvs	3 5	Serala 		ThrThrProLysGluProAlaProThrThrProLysGluProAlaProThrThr	d de la company
1624 770	59	1564	1504 744	727	1444	70	<b></b>	688					_		_	651	109		_		، م			0 573		л -		л <b>.</b>	1 1	лс	n (	л с	•
					_		-	`	•	7		•	7	•	7		5		ŏ	~ <b>`</b>	•	_ (	<b>.</b>	<b>~</b> ∈	٠. د	- (	, (	> 0	<b>&gt;</b>	<b>&gt;</b>	•	<b>&gt;</b> (	J

----Thr

266

251

202

281

```
Percent Similarity:
Best Local Similarity:
                                 Query Match:
                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
US-07-757-022B-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 44, Application US/07757022B Patent No. 6433142
                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 4.
SEQUENCE CHARACTERISTICS:
LENGTH: 1270 amino acids
                                                                                                          8
0
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION: TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/643,502
FILING DATE: 18-JAN-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/546,114
FILING DATE: 29-UN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0. CURRENT APPLICATION DATA: APPLICATION NUMBER: US/07/757,0: PILING DATE: 19910910
                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
FILING DATE: 29-DEC-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1733 AGATCGCCCTGAGCTACGAGAAGC 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1625
                                                                                                                                                                                                                                                                                                                                                                                                      TTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 31,822
REFERENCE/DOCKET NUMBER: GI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          788
                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U.ZIP: 02140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: Cambridge
STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG---------CCGAGCTGGGGCC 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LysGlyProThrSerThrThrSer 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGCGCGCCTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684
                                                                                                                                                                               TYPE:
                                                                                                                                                                                                                  AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: Genetics Institute, Inc
87 CambridgePark Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gesner, Thomas G.
Clark, Stephen C.
Turner, Katherine
Hewlck, Rodney M.
TVENTION: Megakaryocyte Stimulating Factors
                                                                                                                                                                                                                                                                                               (617)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U.S.A.
                                                                                                                                                                                                 linear
                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                          Luann
                                                                                                                                                                                                                                                                                                                                                                                                                          JMBER: US 07/390,901
08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MBER: US 07/457,196
29-DEC-1989
                                                                                                                                                                                                                                                                                           876-5851
                       6.95e-12
285.50
33.50%
23.30%
8.65%:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US/07/757,022B
                                                                                                                                                                                                                                                                        44:
                                                                                                                                                                                                                                                                                                                                                 5190
                                       Length:
Matches:
Conservative:
Mismatches:
                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version #1.25
   1270
137
60
240
151
                                                                                                                                                                                                     臣
                                                     밁
                                                                                    S
                                                                                                                              밁
                                                                                                                                                           Ş
                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-009-782-1 (1-1758) x US-07-757-022B-44 (1-1270)
1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG 1090
                                     480 LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla 499
                                                                        971 CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGGCGAGCGCGGCAAATCCAAGTACG
                                                                                                              460 ProThrThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro
                                                                                                                                               911 TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCC
                                                                                                                                                                                                     440
                                                                                                                                                                                                                                        851
                                                                                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                 791
                                                                                                                                                                                                                                                                                                                                                     417
                                                                                                                                                                                                                                                                                                                                                                                          731
                                                                                                                                                                                                                                                                                                                                                                                                                397 ProThrThrLysGluProAlaProThrThrLysSerAlaProThrThrProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         377 ThrLysGluProSerProThrThrProLysGluProAlaProThrThrThrLysSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614 CGCCCGCCGCCGCCA----CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        316 GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     443 CGCCGGCGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294 AlaproThrThr------ProLysGluProAlapro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              263 GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267 ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        232 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92 ACGGCAGCA-----ACACCCCGGGGCGGCGGCGCCGACCTGGGCGTGCGCGGCGACC 142
                                                                                                                                                                                       LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla
                                                                                                                                                                                                                          CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC
                                                                                                                                                                                                                                                                          ProLysGluProAlaPro----
                                                                                                                                                                                                                                                                                                   AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG
                                                                                                                                                                                                                                                                                                                                       GluProSerProThr -----ThrThrLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                            TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrThrProLysGluProAlaProThrThrProLys-----GluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAAATCGCGGCCATGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrThrLysGluProAlaProThrThrPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCACGACGACGACGACTACCTGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrLysSerAlaProThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATGTCCCAATCCGATTCCCAGCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----LysGluProAlaProThrAlaProLysLysProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ThrThrProLysLysProAlaProThrThrProLys 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ThrThrLysGluProAlaProThrThrThrLysSer
                                                                                                                                                                                                                                                                ----ThrThrPro
```

358

345

335

303 322 293 262

1030 479 910

970

790

416 730 396 670 376 613

850 430

밁

500

```
Patent No. 6433142

GENERAL INFORMATION:
APPLICANT: Gesner, Thomas G.
APPLICANT: Clark, Stephen C.
APPLICANT: Turner, Katherine
APPLICANT: Hewick, Rodney M.
TITLE OF INVENTION: Megakaryocj
NOMBER OF SEQUENCES: 143

CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                       Sequence 42, Application US/07757022B Patent No. 6433142
                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1685 AGGCCAGCG---GCATCGCGGTCTCGACCCTGTCCAAGG------CCGAGCTGGGCC 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1565 ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1505 TACAATCCGGCGTGAACGGGGGGGGGGGGCGTGCCGCCTCCCAACCCCTGGACGCAAACCGCT 1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1385 CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGCGGTCTGGCAAGAGCAGGCGTTCA 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674 LysGlyProThrSerThrThrSer 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 654 GluProAlaProThrThrProLysLysProAlaProLysGluLeuAlaProThrThrThr 673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1328 TGTTCGACCCGGCCACGGTGGCCGATACCG---CCACCTTCGAACACCCCTACCGAGCGCG 1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 611 -----ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1268 CGCGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1208 GCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCC 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1148 ACGAGCGCCCGCATCCGCCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGC 1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 555 AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             536 Lysalaala---ProasnThrProLysGluProalaProThrThrProLysGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   518 ThrProGluGluProThrProThrThrProGluGluProAlaProThrThr------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGATCGCCCTGAGCTACGAGAAGC 1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGCGCGCGCCTGCGCGCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC 1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----LysGluProAlaProThrThrProLysGlyThrAlaPro---ThrThrLeuLys 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrThrProLysGluProAlaProThrThrPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProAla----ProLysGluLeuAlaProThrThrThrLysGluProThrSerThr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGCCAGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCAGCCCT 1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProLysGlyThrAlaPro---ThrThrLeuLysGluProAlaProThrThrProLysLys 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG---GCTCCGACGGCCTGCCGCACG 1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProThrThrPro-----GluLysProAlaProThrThrProGluGluLeuAlaProThr 517
                                                                                                                                                                                  87 CambridgePark Drive
            PatentIn Release #1.0,
                                                                                                                                                                                                     Genetics Institute, Inc
                                                                                                                                                                                                                                                          Megakaryocyte Stimulating Factors
        Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----- 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----Pro 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         534
                  밁
                                                                                          맑
                                                                                                                             S
                                                                                                                                                                      밁
                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-009-782-1 (1-1758) x US-07-757-022B-42 (1-1311)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; MOLECULE TYPE: US-07-757-022B-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (617)876-11
TELEPAX: (617)876-5851
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 1311 amino act
377 ThrThrLysGluProAlaProThrThrPro--
                                                                                                            383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                      335 AlaproThrThr------ProLysGluProAlapro-------
                                                                                                                                                                                                                                                                  263 GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCCAATT 322
                                                                                                                                                                                                                                                                                                                              323
                                                                                                                                                                                                                                                                                                                                                                                                        308
                                                                                                                                                                                                                                                                                                                                                                                                                          143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCCGCACACCCGGGTCGACGTGTCGG 202
                                                                                                                                                                                                                                                                                                                                                                 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           273 ProThrProThrThrIleLysSerAlaProThrThrProLysGluProAlaProThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: GITTELECOMMUNICATION INFORMATION: TELEPHONE: (617)876-1170
TELEPHONE: (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/390,901
FILING DATE: 08-AUG-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92 ACGGCAGCA-----ACACCCCGGGGCGGCGCGCCGACCTGGGCGTGCGCGGCGACC 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Cserr, Luann
REGISTRATION NUMBER: 31,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 29-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 29-DE
                                                                       GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 19910910
                                                                                                                                                                                                                                                                                                                                            GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                                       ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrLysSerAlaProThrThrProLysGluProAlaProThr------Thr 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1311 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-DEC-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-JAN-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.01e-12
285.50
33.50%
23.30%
8.65%
                                --CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                                                                                                                                                                                                                           -----ThrThrLysGluProAlaProThrThrLysSer 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/457,196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 07/546,114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/07/757,022E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US 07/643,502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42:
                                                                                                                                                 ---ThrThreroLysLysProAlaProThrThrProLys 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                         376
                                                                                                                                                                                        382
                                                                                                                                                                                                                               344
                                                                                                                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
```

RESULT 13 US-07-757-022B-42

ADDRESSEE: STREET: 87

CITY: Cambridge STATE: Massachusetts

COUNTRY: U. ZIP: 02140

U.S.A.

몆

1733

밁

637

1625

626

ş 밁 Ş 밁

Ş

1445

575

594

밁

FIGAL  CCGAT  CCCAC  CCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCAC  CCCCC  CCCCC  CCCCC  CCCCC  CCCCC  CCCC	THETHEPOLYSGLUPEOALA PTOTHETHEPECLYS  COCCOGCOCCOCCOCCACCA
--	--

Alignment Pred. No. Score: Percent S	RESULT US-07 Sequence Sequence Pater Pater GENN AN AN AN AN AN AN AN AN AN AN AN AN A	A dd	D Qy	Db Qy Db
05	7-01 7-01 7-01 7-01 7-01 7-01 7-01 7-01 7-01 7-01 7-01 7-01	1733 . 715 :	1685	667 1625 678
similarity:	THE SECOND STATES OF THE SECOND SECON	AGATCG ::: LysGly	AGGCCAGCG-       GluproAlap	ThrThr Tegece
	THE SECOND NOT NOT NOT SEE THE SECOND NOT NOT NOT SEE THE SECOND NOT NOT NOT SEE THE SECOND NOT NOT NOT SEE THE SECOND NOT NOT NOT NOT SEE THE SECOND NOT NOT NOT SEE THE SECOND NOT NOT NOT SECOND NO	CCCTGA       ProThr	GCG     Alapro	ProLys CGCGCC ::: LysGlu
7.01e- 285.50 33.50%	Il Cation US/077  ION: ISONEY, Thomas G. SENEY, Thomas G. SENEY, Thomas G. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. WICK, Rodney M. EDEFORM: FIOPPY disk FIOPPY disk FIOPPY disk FIOPPY disk FIOPPY disk RODS/M. FIOPPY disk FIOPPY disk FIOPPY disk FIOPPY disk MINGERS: COMPATA: MINGER: US/07/ 1910910 NN: 530 ION DATA: MINGER: US 07/ 29-UN-1990 ION DATA: WICKET MUMBER: US 07/ 29-UN-1990 ION DATA: UNDEER: US 07/ 29-UN-1990 ION DATA: UNDEER: US 07/ 39-UNDEER: US 07/ 39-	GCTACG :::    SerThr	GCATCG	GluPro
112	15x/07  15k arkarkarkarkarkarkarkarkarkarkarkarkarka	AGATCGCCCTGAGCTACGAGAAGC:::        	AGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGG        	ThrThrProLysGluProAlaProThrThrPro
Lei Mai	/07757022B  g G. n C. rine y M. karyocyte St titute, Inc ck Drive  107/757,022B  07/643,502 1 07/757,022B  07/757,022B  07/757,022B  07/757,022B  07/757,022B	1756 722	CGACCC :::    LysPro	ThrTh: GCAAGG
Length: Matches: Conservative	Stimulating Inc.  Version #1 22B 02 02		TGTCCA	CCCGGL
tive:			AGG :::	AAAATG
· 1313 137 .60	25 Factors		euA1	ACCCTG
	ii.		-CCGAGCT	CAAGAC
			CCGAGCTGGGCC    :::	CAAGACCTGTCGC
				677 3C 1684 :: 694
			N	₽-

971 523	y 911 b 503						ن خم	1 ω s		- ω . ι	3, 34 34 34	25 AG		Db · · 3;		OV	N	-10-	Best Lo Query M DB:
	11 TCAAGCAGGACCGCGTGCTGGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCC :::						2 2	8 9	79	, 6	47	23		203 GCCTGGTGGTGGCGCCGGGTTCATCGACGACGACCACCCAC		2 ACCIOCACIONACACCICGGGGGGGGGGGGGGGGGGGGGGGGGG		·009-782-1 (1-1758) x US-07-757-022B-142 (1-1313)	Best Local Similarity: 23.30% Mismatches: 240 Query Match: 8.65% Indels: 151 DB: 4 Gaps: 24
							•			CGGGCCA      OAlapro	urProLys		GGCAATT	CCTGCTCA        nrLysSer	hr	CGGCGACC     Thr	CCTCATCG   :::::: roThrThr		
	970 522	910 502	850 482	790 473	730 459	670 439	613 419	553 401	493 388	442. 378	358	346	322	262 336	.202	309	91		

	,			• .			•														
URESU FS-CO Pae	Db Qy	B 7	용	Qy	B 5	B B	Qγ	문	\$ B	, 15	뫄	δδ	рb	ş ş	P 2	, p	δδ	ga	Qy	фd	νg
US-07-757-022B-50 Sequence 50, Application US/07757022B Patent No. 6433142 GENERAL INFORMATION: APPLICANT: Gesner, Thomas G. APPLICANT: Clark, Stephen C. APPLICANT: Turner, Katherine APPLICANT: Hewick, Rodney M. TITLE OF INVENTION: Megakaryocyte Stimulating Factors UMMBER OF SEQUENCES: 143 CORRESPONDENCE ADDRESS: ADDRESSEE: 87 Cenetics Institute, Inc. STREET: 87 Cambridge STATE: Massachusetts COUNTRY: U.S.A. ZIP: 02140 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk	1733 AGATCGCCCTGAGCTACGAGAAGC 1756 :::     ::       717 LysGlyProThrSerThrThrSer 724	69	680EysGluproAlaProThrThrProLysGlyThrAlaProThrThrLeuLys 69	1625 TGGGCGCGCGCGCGCGGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGC	UY 1363 ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGA 1624	654	1505 TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCCCAACCCTTGGACGCAAACCGCT 15	637	618 ProLysGlyThrAlaProThrThrLeuLysGluProAlaProThrThrProLysLys	1385 CCGCCGGCATCCATTCCGTG	598 AlaProThrThrProLysGluProAlaProThrThrProLysGluThrAlaProThrThr	1328 TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCG		1268 CGCGCTTCGGCCTGGCCGCGCGCGCGCGCGCGCGCGCCGC	1208 GCGACCTGGGCCTGTT	577 -	QY 1148 ACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGC 120	561 ThrProGluGluProThrProThrProGluGluProAlaProThrThr	1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACG	543 ProThrThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr	1031 ACGTGGTGCCCGAGCT

```
US-10-009-782-1 (1-1758) x US-07-757-022B-50 (1-1314)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IS-07-757-022B-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (617)876-8851
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 1314 amino aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 19910910
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/643,502
FILING DATE: 18-JAN-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/546,114
FILING DATE: 29-JUN-1990
PRIOR APPLICATION DATA:
ADBITCATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
          443 CGCCGGCGG------CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                  360 GluProAlaProThrThrProLysGluProThrProThrThrProLysGluProAlaPro
                                                                         383 ACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCA 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                      323 GCGGCATCAGCCTGGCGCCGCTGGCGCAACCCCAACCCCGCCCCCCTGGACCTGCTGG 382
                                                                                                                                                                                                                      338 AlaproThrThr----
                                                                                                                                                                                                                                                    263 GGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATT 322
                                                                                                                                                                                                                                                                                                        326 ---
                                                                                                                                                                                                                                                                                                                               203 GCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCA 262
                                                                                                                                                                                                                                                                                                                                                                       311 ThrLysGluProAlaPro-----ThrThrProLysGluProAlaProThr-----
                                                                                                                                                                                                                                                                                                                                                                                                             143 GCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGG 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     296 ThrLysSerAlaProThrThrProLysGluProAlaProThr -------Thr 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92 ACGGCAGCA-----ACACCCCGGGGCGCGCGCGCCGACCTGGGCGTGCGCGGCGACC 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (617)876-1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGCGCACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 07/457,196
FILING DATE: 29-DEC-1989
RIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: AMINO ACID TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 07/390,901 FILING DATE: 08-AUG-1989 TORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REGISTRATION NUMBER: 31,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1314 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (617)876-5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7.01e-12
285.50
33.50%
23.30%
8.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/07/757,022B
                                                                                                                              ----ThrThrProLysLysProAlaProThrThrProLys 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50:
                                                                                                                                                                                                                ---ProLysGluProAlaPro-------
                                                                                                                                                                                                                                                                                         GI 5190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels:
                                                      379
                                                                                                                                                                                                                347
                                                                                                                                                                                                                                                                                                                                                                         325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380 ThrThrLysGluprobla
Ξ
```

:      :::		
GGACGCAAACCGCT 1	1505 TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCCTC	VQ.
GCACGCACGCCGCCTGAGCCCGGCGCCAGCCCT 1504	1445 CCGGCCAGCATGCCGGCGCGCGTGCTCGCACGCACGCCGCCTGAGC	D Qy
irLeuLysGluProAlaProThrThrProLysLys 637	619	
AGCA	1385 CCGCCGGCATCCATTCCGTGTACGGCCAACGGCGCGCGCG	Qy
	599 AlaproThrThrProLysGluProAlaproThrThrPr	당
CCACCTTCGAACACCCTACCGAGCGCG 13	CGACCCGGCCACGGTGGCCGATACCG	Qy
:::     GluProAlaProThrThrProLysGluPro 59	:::   :::        580 LysalaalaalaProasnThrProLysGluProal	망
TGCAGGCCGGGTACTTCGCCGACCTGG	CTTCGGCCTGGCCGGGCGGCAGCTGC	Qy .
 		В
GCGGTATGGAAGATGACCGGCCTGACCGCCG 12	GAGACG	δ
		₽
<b>GCACCTTCCCGCGGGTGCTGGGGCACTA</b>	G	Qγ
hrProGluGluProAlaProThrThr 578	oGluGluP	Db
SACCATGATCGGCTCCGACGGCCTGCCGCACG 1147	1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCG	γQ
ThrProGluLysProAlaProThrThrProGluGluLeuAlaProThr 561	544 ProThrThrProGluLysProAlaProThrTh	ф
CGGCGCCATCTACTTCATGATGGACGAACCCGACG 1090	1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGCCCATCTAC	ργ
  ysLysLeuThrProThrThrProGluLysLeuAla 543	524 LysGluThrAlaProThrThrProLysLysLeuThrProThrThrProGluLysLeuAla	Дb
TGAAGTCGCGGCCGAGCGCGGCAAATCCAAGTACG 1030	971 CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCC	Qy
roThrAlaProLysGluProAlaProThrThrPro 523	504 ProThrThrLysLysProAlaProThrAlaProLysGluProAlaProThrThrPro	Дb
CGGACGCACCATCATCACCTGGTGCAAGCCCTTCC 970	911 TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATO	γo
	484 LysLysProAlaProThrThrProLysGluProAlaProThrThrProLysGluProAla	<b>Db</b>
GGACGCGTATCCTACGTGGCCGGCTCCACCATGC 910	851 CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCC	γo
	475 ProLysGluProAlaPro	ğ
CCGCTCGCGAGACGCTGCCGCTGATCGAGGCCG 850	791 AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCCGCTGATCGAGGCCG	Qy
_	461 GluproSerProThrThrn	Дb
CGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA 790	731 TGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA	γQ
roThrThrLysSerAlaProThrThrProLys 460	441 ProThrThrLysGluProAlaProThrThrThrLysSerAlaProThrThrProLy	밁
CATGCGCGACGAAGGCGAGCACATCGTGGCCGCGC 730	671 CGCATGGCGGCATCTACGCCACCCACATGCGCGACGA	Qy
 erAla	421 ThrLysGluProSerProThrThrProLysGluProAlaProThrThrThrLysS	₽.
GAGCG	614 CGCCCGCCGCCCGCCCACCACCGAAGAGATCAT	Qy
OLYSGluProAlaProThrThrProLysGluProAlaProThrThr 420	403 ThrThrProLysGluProAlaProThrThrProLys-	Ð
ACC C	554 ACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGG	Qy .
:::    sLysProAlaPro 4	390LysGluProAlaProT	Db.
GCGGCCATGCGGG 5	494 CCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAAAATC	Ωу
hrPro 389	380 ThrThrLysGluProAlaProThrThrPro	뮍

Search Job ti	₽	V	B	Qy .			Q ·	당	Ş	
me :	718	1733	869	1685	001		1625	670	1565	
Search completed: May 11, 2003, 12:17:20 Job time : 65.5 secs	718 LysGlyProThrSerThrThrSer 725	1733 AGATCGCCCTGAGCTACGAGAAGC 1756	698 GluProAlaProThiThrProLysLysProAlaProLysGluLeuAlaProThrThrThr 717	1685 AGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGCCGGCGTCCGACCTGTCCAAGG	LysGluProAlaProThrThrProLysGlyThrAlaProThrThrLeuLys 697		Transferrance company of the second control	670 ThrThrProLysGluProAlaproThrThrPro	1565 ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTA	053ThrSerAspLysProAlaProThrThrProLysGlyThrAlaPro 669
			J (		7	84	ŏ	4	3	99

Result ö

Score

Query Match

Length

멂

ä

Description

SUMMARIES

```
Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -MODEL-frame+ n2p.model -DEV-xlp
-O-/c9n2_1/USPTO_spool/US1009782/runat_07052003_122516_23113/app_query.fasta_1.1927
-DB-A_Geneseq_101002 -QFMT-fastan -SUFFIX-rag -MINMATCH-0.1 -LOOPCL-0
-LOOPEXT-0 -UNITS-blts -START-1 -END-1 -MATRIX-blosum62 -TRANS-human40.cd1
-LIST-45 -DOCALIGN-200 -THR_SCORE-pct -THR_MAX-100 -THR_MIN-0 -ALIGN-15
-MODE-LOCAL -OUTFMT-pto -NORM-ext -HEAPSIZE-500 -MINLEN-0 -MAXLEN-200000000
-USER-US1009782_@CGN_1_1@1 @runat_07052003_122516_23113 -NCPU-6 -ICPU-3
-NO_XLPXY -NO_MMAP -LARGEQUERY -NES_SCORES-0 -WAIT -LONGLOG -DEV_TIMEOUT-120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO_XLPXY -NO_MMAP -LARGEQUE WARN_TIMEOUT-30 -THREADS-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YGAPOP-10 -YGAPEXT-0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
Pred. No. is the nu
score greater than
and is derived by a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein search, using frame_plus_n2p model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                May 11, 2003, 10:52:45 ; Search time 66 Seconds (without alignments) 7098.624 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-009-782-1
3299
   the number of results predicted by chance to have a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                   /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999./
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999./
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000./
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001.
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:
                                                                                                                                                                               DS2/gcgdata/genesed/geneseqp-emb1/AA1989.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1990.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1991.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1991.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1993.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1994.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1995.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1995.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1995.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1997.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
DS2/gcgdata/genesed/geneseqp-emb1/AA1999.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1816940
```

0000

ဂ ဂ

total score distribution

28-DEC-2000. WO200078926-A1.

```
문
                                                            Š
                                                                                  문
                                                                                                      Ş
                                                                                                                                                                                                                             ġ
                                                                                                                           ₽
                                                                                                                                              S
                                                                                                                                                                  밁
                                                                                                                                                                                    δÃ
                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-009-782-1 (1-1758) x AAB48975 (1-484)
                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to a recombinant zinc-tolerant microorganism which expresses the D-aminoacylase from Alcaligenes xylosoxidans subspecies xylosoxidans. The presence of zinc ions in the culture medium enhances the process of recombinantly producing the D-aminoacylase sto microorganism of the invention also relates to microorganism of the invention. The recombinant microorganism is used synthesis of high optical-purity D-form amino acids for use in the production of antibiotics and peptide drugs. The present sequence represents Alcaligenes xylosoxidans subspecies xylosoxidans
                              454
                                                                                  101
                                                                                                       334
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                      214
                                                                                                                                                                                                         154 ATCGGCGATCTGTCGGACGCCGCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                               81 MetrhrProLystieSerGlnGlyValThrThrValValThrGlyAsnCysGlyIleSer 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 2; Page 14-18; 22pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transformed microorganism from zinc-tolerant host for selective production of D-aminoacylase, useful in synthesis of high optical-purity D-amino-acids for antibiotic side-chains and pept drugs -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Takeuchi K,
                                                                                                                                                                  61
                                                                                                                                                                                                                                      (AMAN-) AMANO ENZYME INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-JUN-2000; 2000WO-JP03932.
ATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCCATCAGC 333
                                                                                                                                                                                                IleGlyAspLeuSerAspAlaAlaAlaHisThrArgValAspValSerGlyLeuValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001-080828/09.
DB; AAC91797.
                                                                                                                                                                                                                                                                                                                                                                                                                                     484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Koide Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ą,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99JP-0170555.
                                                                                                                                                                                                                                                                                                                                                 4.43e-173
2511.00
100.00%
100.00%
76.11%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hirose Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Japanese.
                                                                                                                                                                                                                                                                                                                                                         Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Moriguchi M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Isobe K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and peptide
                                 140
                                                    453
             513
                                                                                                                                                         8
                                                                                                                                                                           273
                                                                                                                                                                                                60
                                                                                                                                                                                                                   213
                                                                                                                                                                                                                                        40
                                                                                                                                                                                                                                                           153
```

Db 481 A	461	441	1354	401	Db : 381	361	b . 34	b 32 y 105	0 0	2 22 C	Db 261	2 N 3	75	Db 201 Qу 694	у 63		рь 161	Ob 141	·
SCACGGCCGCC 1485	lllllllllllyAlaProv	COCCECCOTTCTSCALACTOTTACCGAGCGCGCCGCCGCCATTCATTALLIIIIIIIIIIIIIIIIIIIIIIIIIIII	CUSCAGGCCAGGTACTTCGCCGACCTGGTGGTGGTGCTCGACCCGGCC	Company	SCACCATTICCGGGGGGTACTGGGGCACTATGCGGC    -  -  -  -  -  -  -  -  -  -  -  -			THE TOTAL CONTROL OF THE PROPERTY OF THE PROPE		COGGACGCACCATTATECTCACTGCTCACCATGCTCAAGCAGGACCATGCACGATGCACCATGCACATGCACATGCACCATGCACATGAATGCACATGAATATATAT	CUSCTEGGGGAAAGGTGCCGGTGATGGAGGCGGCATGGCGCGCCC 	gGluLeuAspValProValVal)		ThrGluGluIleIleGluValCysArgProLeuSerAlaHiSGlyGlyIleTyrAlaThr 22 CACATGCGGGAGGAGGAGCAFATCGTGGGGGGGGGGGAGCAFGATGGGGGGGGAGCAFGATGGGGGGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGG	ALGOGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC	GCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCGGCCGCCGCCGCCGCCGCCCACC 6		ValAsnAlaAlaCysMetValGlyHisSerThrLeuArgAlaAlaValMetProAspLeu 16 CAGCGCGCCCCCCGACGAGGAAATCGCGGCCATGCGGACGGGACGTCCATGCATG	Wallaca land

RESULT 2 AAY84943 ID AAY8

AAY84943 standard; Protein;

```
Š
                                            밁
                                                                S
                                                                                         밁
                                                                                                                Š
                                                                                                                                       밁
                                                                                                                                                             δõ
                                                                                                                                                                                 US-10-009-782-1 (1-1758) x AAY84943 (1-484)
                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                              DB:
                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                            reexsxooooooooo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present sequence represents an aminocyclase enzyme. The enzyme is capable of hydrolysing N-acetyl-D-tryptophan at a substrate concentration of 10 grams per litre, and exhibiting faster conversion of R-N-acetyl-2-thlenylalanine than of R-N-acetyl-4-chlorophenylalanine. The enzyme can be used for the preparation of a D-amino acid by conversion of a corresponding D-N-acylamino acid. It can also be used for resolving a racemic mixture of N-acylamino acids and deprotecting optically-enriched N-acyl amino acids. The D-amino acids are useful as intermediates in the production of various pesticides, antibiotics and other
                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New isolated D-amino acylase enzyme, useful for the preparation of D-amino acids for use as intermediates in the preparation of pesticides, antibiotics and other pharmaceuticals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 2; Page 20-22; 26pp; English.
pharmaceuticals.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-339697/29.
N-PSDB; AAA15140.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Aminocyclase; N-acetyl-D-tryptophan; R-N-acetyl-2-thienylalanine; R-N-acetyl-4-chlorophenylalanine; D-amino acid; N-acyl amino acid; pesticide; antibiotic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Taylor SJC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (CHIR-) CHIROTECH TECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-OCT-1998;
01-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200023598-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alcaligenes sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Amino acid sequence of an aminocyclase enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-AUG-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY84943;
                                                                                                                               94
                                                                                           21
                                                                                 484 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brown RC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98GB-0022947.
99GB-0007739.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99WO-GB03458.
                                                                                                                                                                                                         6.49e-171
2481.00
99.38%
98.76%
75.20%
                                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                       484
478
3
0
             273
                                     60
                                                           213
                                                                                                                                 20
                                                                                                                                                . 93
```

	п	^	н.				٠ _																											
Qy 1 Db	뫄		Db .				Ϋ́	용	Dy .	8	Ϋ́	용	Ϋ́	В	Qγ	ğ	γ	皮	γQ	В	γQ	뭥	Qy .	망	VΩ	Дb	V.	日	QΥ	문 .	Ŷ	8	ΨQ	Db G
.294 421	401	1234	381	74	361	341	4	21	94	301	934	Ë.	74	261	814	241	754	221	694	201	634	181	574	161	514	141	454	121	394	0	3 3 4	œ	274	61
- 4	ThrAlaValTrpLysMetThrGlyLeuThrAlaAlaArgPheGlyLeuAlaGlyArgGly 4	CGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGG	GlyThrPheProArgValLeuGlyH1sTyrAlaArgAspLeuGlyLeuPheProLeuGlu 4	GCACCTTCCCCGGGGTGCTGCGGGACTATATAGGGCGCGACCTGACCTGCGACCTGGTGGGGGACCTGGGGGACCTGGGGGGACCTGGGGGACCTGAGGGGGACCTGAGGGGACCTGAGGGGACCTGAGGGGACCTGAGGGGACCTGAGGGGACCTGAGGGGACCTGAGGGACCTGAGGAGAGGAGAGAGA	CCGACCATGATCGCCTCCGACGGCCTGCCGCACGACGACGACGCCCGCATCCGCGCCTGTGG 1		CCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCG	AspGluValAlaAlaGluArgGlyLysSerLysTyrAspValValProGluLeuGlnPro 3	ATGAAGTCGCGGCCGAGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCG	AlaGlyArgThrIleIleThrTrpCysLysProPheProGluLeuSerGlyArgAspLeu 3	CCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGG	LeuAspAlaTyrProTyrValAlaGlySerThrMetLeuLysGlnAspArgValLeuLeu	GGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTG	GlyArgSerArgGluThrLeuProLeuIleGluAlaAlaMetAlaArgGlnAspValSer 2	GCCGCTCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCG	AIGLYSLEUASPVAlPTOVALVALILESETHISHISLYSVALMEtGLYGLNPTOASnPhe	GCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTC		ACATECECGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGC		CCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCCGCATCTACGCCACC		CCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCCG		AGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGC		TCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCGC		CTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCTTGCGGGCCACGCCGGCGGC		TITLE TO THE PROPERTY OF THE P		Otolic messale and development and the composition of the composition	AlaProGlyPheIleAspSerHisThrHisAspAspAsnTyrLeuLeuArgArgArgAsp
353 40	20	293	00	80	.173	60	113	40	053		<b>ω</b>	Ò	w	ω .	7	260	_	4	u	N 4	٥	0 (	w	ω .	7 (			4	n i	120	, (	100		80

```
Ó
                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                         US-10-009-782-1 (1-1758) x AAB96073
                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 3
AAB96073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                            The present invention relates to the genomic sequence of Pyrococcus abyssi (see AAF86431 and AAH41233-7) and P. abyssi proteins. P. abyssi a hyperthermophilic archaeon, which is isolated from deep-sea hydrothermal vents. The present sequence is one such P. abyssi protein. The proteins of the present invention have various potential industrial uses, since the proteins are stable at very high temperatures, some up to 110 degrees centigrade.

Note: This patent is in the same patent family as WO200065062, which contains additional sequences as shown in AAB99132-AAB99143,
                                                                                              No.:
                                                                                                                        Sequence
                                                                                                                                         AAH75903-AAH75920 and
                                                                                                                                                                                                                                      Claim 7; Pages 694-696; 1657pp; French.
                                                                                                                                                                                                                                                       New nucleotide sequences isolated from proteins useful in industry -
                                                                                                                                                                                                                                                                                    WPI; 2001-126236/14
                                                                                                                                                                                                                                                                                                      Querellou
                                                                                                                                                                                                                                                                                                                                                          21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                              FR2792651-A1
                                                                                                                                                                                                                                                                                                                                                                                                                             Pyrococcus abyssi.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Hyperthermophilic archaeon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Putative P. abyssi dihydroorotase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB96073;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1354
                                                                                                                                                                                                                                                                                                              Forterre P,
                                                                                                                                                                                                                                                                                                                                                                           21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB96073 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            441
 ArgThrAlaAla 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCACGCCCGCC 1485
                                                                                                                                                                                                                                                                                                                                        CNRS
                                                                                                                                                                                                                                                                                                                            CNRS CENT NAT RECH SCI.
IFREMER INST FR RECH EXPL MER.
                                                                                                                       526 AA;
                                                                                                                                                                                                                                                                                                 Thierry JC, Prieur D, Dietrich J, Weissenbach J, Saurin W, Heilig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                       99FR-0005034
                                                                                                                                                                                                                                                                                                                                                                          99FR-0005034.
                                                8.75e-60
942.00
55.56%
40.11%
28.55%
                                                                                                                                        sequences as nd AAG66436..
                                                                                                                                                                                                                                                                                                                                                                                                                                             hyperthermophilic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   526
                              (1-526)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                              Gaps:
                                                                                                                                                                                                                                                                 Pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                             protein.
                                                                                                                                                                                                                                                                                                   æ
                                              526
213
82
172
64
                                                                                                                                                                                                                                                               abyssi encode
                                                                                                                                                                                                                                                                                                          Lecompte
                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                      ç
                                                                                                                                                                                                          is
                                  밁
                                                    Ş
                                                                     밁
                                                                                     Ş
                                                                                                         밁
                                                                                                                                           ₽
                                                                                                                                                           S
                                                                                                                                                                               日
                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
356
                                  336
                                                    934
                                                                     316
                                                                                       916
                                                                                                                           915
                                                                                                                                                                                                805
                                                                                                                                                                                                                236
                                                                                                                                                                              256
                                                                                                                                                                                                                                  745
                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                     589
                                                                                                                                                                                                                                                                                       196
                                                                                                                                                                                                                                                                                                        625
                                                                                                                                                                                                                                                                                                                                           565
                                                                                                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                                                                                                          176
                                                                                                                                                                                                                                                                                                                                                                             505
                                                                                                                                                                                                                                                                                                                                                                                               136
                                                                                                                                                                                                                                                                                                                                                                                                               445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24
```

```
닭
                                                                                                                                                                                                                                     296 LeuProProTrpValHisGluSerGlyLysIleLysGluArgCysArgAspGluGluThr
                                                                                                                                                                                                                                                                                                                   276 IleGluIleThrLeuAspValTyrProTyrThrAlaGlySerThrTyrLeuAlaAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116 GluValGluPheLysTrpArgSerTyrGlyGluPheLeuAspAlaLeuGluGluValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358 CCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTAC-----
                                     GACCTGGATGAAGTCGCGGCCAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTG
SerLeuLysGluIleSerAspLeuLeuHisArgAspProPheAspValLeuPheAspIle
                                                                          AlaGlyTrpGluAsnIleIleIleThrHisSerGluAsnPheProGluPheValGlyLys
                                                                                                                 GCCGGA-----CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGC
                                                                                                                                                          ArgLysLysIleArgGluPheIleGluThrArgAspAspTrpGlnAsnPheIleLysGlu
                                                                                                                                                                                                                                                                                                                                                                                               LysAsnTrpGlyLysSerArgLysThrLeuAlaLeuIleGluLysAlaArgAsnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                      CCCAATTTCGGCCGCTGGCGAGACGCTGCCGGTGATCGAGGCCGCCATGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAG
                                                                                                                                                                                                                                                                                                                                                          ---GACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TyrSerLysThrTrpGluLeuIleGluLeuAlaMetValValAlaLysTyrGlyGlyIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCGCCACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCCGCATC 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAGCCATGGCCAGCGGCGATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrSerThrHisMetArgAspGluGlyAsnArgValIleGluAlaLeuGluGluAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGACTTGCAGCGCCGCCACCGACGAACGAAATCGCGGCCATGCGGGAACCTGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProLeuGlyThrAsnPheValGlyLeuValGlyH1sGlyThrLeuArgIleAlaValMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaHisAspAspLeuTlePhePheLysAspArgPheAsnArgAlaLysLeuLeuGlnGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnValThr---IleAspAlaSerAsnLeuIleValAlaProGlyPheIleAspMetH1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrAspIleGlyIleLysAspGlyLysIleValLysIleGlyLysIleLysGluAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGACCTGGGCGTGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrAspIleValIleLysAsnGlyLysIleValAspGlyThrGlyAsnProTrpPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GluMetLeuAspValLeuLysSerTyrValGlyIleLeuGlyLys 115
                                                                                                                                                                                                 ----CAGGACCGCGTGCTGCTG
                                       1047
                                                                                                                   987
                                                                                                                                                                                                                                                                                                                                                                                                 275
                                                                                                                                                                                                                                                                                915
                                                                                                                                                                                                                                                                                                                       295
                                                                                                                                                                                                                                                                                                                                                                                                                                         864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                           Novel D-aminoacylase-encoding gene derived Hypomyces mycophilus, useful for producing N-acetyl-D-tryptophan, useful as medicinal
 This sequence shows a D-aminoacylase
                       Claim 1; Page 17-20; 33pp; English.
                                                                                             WPI; 2001-551332/62.
N-PSDB; AAH43261.
                                                                                                                               Mitsuhashi K,
                                                                                                                                                                                                                                                                                             D-aminoacylase; N-acetyl-D-tryptophan; N-acetyl-D-phenylalanine; PCR; N-acetyl-D-valine; N-acetyl-D-leucine; N-acetyl-D-methionine; primer; probe; synthesis; detection; D-amino acid; substrate specific; amplify; thermal stability; polymerase chain reaction.
                                                                                                                                                    (DAIL ) DAICEL CHEM IND
                                                                                                                                                                           27-JAN-2000;
22-MAY-2000;
                                                                                                                                                                                                           25-JAN-2001; 2001EP-0101739.
                                                                                                                                                                                                                                    01-AUG-2001
                                                                                                                                                                                                                                                                                Hypomyces mycophilus.
                                                                                                                                                                                                                                                                                                                                                            D-aminoacylase.
                                                                                                                                                                                                                                                                                                                                                                                                                             AAB47456 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1330
                                                                                                                                                                                                                                                                                                                                                                                    13-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                          AAB47456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyIleLysTyrValIleValAsnGlyValLeuSerValGluAsnGlyGluLeuThrGly 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGC 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysLeuGlyLeuLysAspArgGlyLeuValLysGluGlyMetTrpAlaAspLeuValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCTTCGGCCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTG 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluLysLysLeuLeuArgLeuGluAspAlaIleArgLysMetThrSerLeuProAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCTGGGCCTGTTCCCGCTGGACACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluArgIleLeuSerHisProTyrSerMetIleGlyThrAspGlyLeuAspSerGlyGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspAlaGlyGlyValValIleArgArgThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCATGCCGGCCGCGTGCTCGCACGCACGGCC 1482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PheAspProHisArgValLysAspArgAlaThrTyrThrAsnProArgLeuProProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000JP-0019080
2000JP-0150578
                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                              Yamamoto H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CAGCCGGCCGCCCATCTATGATGGACGAACCCGACGTG 1092
                                                                                                                                                                                                                                                                                                                                                                                                                             Protein;
                                                                                                                                                    GET
                                                                                                                            Matsuyama
                                                                                                                                                                                                                                                                                                                                                                                                                             558
 polypeptide.
                                                                                                                           P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526
                                                                                                                          Tokuyama
                                             from filamentous fungus
D-tryptophan from
raw material -
D-aminoacylase
                                                                                                                           ŝ
has
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               415
```

```
밁
                                             Ş
                                                                               밁
                                                                                                            δã
                                                                                                                                                 문
                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-009-782-1 (1-1758) x AAB47456 (1-558)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
            204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D-aminoacylase cDNA are useful as primers or as probes for synthesising or detecting the full length cDNA. D-aminoacylase is useful for producing D-amino acids. The enzyme has substrate specificity, thermal stability and produces D-amino acid efficiently by incubating the fungus derived D-aminoacylase with N-acetyl-D-amino acid under proper conditions. The enzyme has high enzymatic activity for N-acetyl-D-tryptophan and is excellent in industrial applicability. The recombinant polypeptide of D-aminoacylase can be manufactured at a low cost and in large quantities.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-acetyl-D-amino acids to produce the corresponding D-amino acids, and substrate specificity, where the enzyme acts on N-acetyl-D-tryptophan, N-acetyl-D-phenylalanine, N-acetyl-D-valine, N-acetyl-D-nethionine, but not on N-acetyl-L-tryptophan, N-acetyl-L-phenylalanine, N-acetyl-L-valine, N-acetyl-L-methionine. Fragments of the N-acetyl-L-leucine, or N-acetyl-L-methionine.
                                                                               184
                                                                                                                 538
                                                                                                                                                   164
                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                      144
                                                                                                                                                                                                                                                        418
                                                                                                                                                                                                                                                                                                                                                                                               349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĕ
∴
                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                            373
                                                                                                                                                                                                                                                                                                                                                  104 AsnValAspGinLeuArgAlaIleArgGluGlnIleAlaGlyTrpAsnGlyAsnProThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     physicochemical properties that include the action of the enzyme one N-acetyl-D-amino acids to produce the corresponding D-amino acids,
                                                                                                                                                                                                                                                                                                                                                                                                                               84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 GACCTGCTGCTGGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGGGCGG----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :::::|||
4 GluIleLeuPheHisSerAlaThrValIleThrGlyAspGluAlaAlaGlnProPheVal
{\tt SerGlyLeuThrTyrThrProGlyMetTyrAlaSerThrSerGluLeuAlaSerLeuCys}
                         ATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCG
                                                                                                                                        GlnGlyAsnLeuArgLeuLeuAlaCysGlyProTyrAspThrProAlaSerAlaGluGlu
                                                                                                                                                                                                           GluTyrLeuAspCysLeuGluArgAsnArgThrAlaThrAsnValAlaMetLeuValPro
                                                                                                                                                                                                                                             GACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCGGCCTCAACGCCGCCTGTATGGTGGGC
                                                                                                                                                                                                                                                                                                                GAC-----CTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCC
                                                                    CATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAA
                                                                                                                                                                                                                                                                              AspGluGluCysArgThrThrLeuLysGlyValGlyMetPheGluTrpGlnThrIleGly
                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGCAGGGCGTCACCACCGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCTGGCGCGCTGGCG 348
                                                                                                                                                                                                                                                                                                                                                                                           CACGCCAACCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                   ThrGlnGlyCysThrThrGluValValGlyGlnAspGlyIleSerTyrAlaProIleArg 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspMetH1sAlaH1sSerAspLeuTyrLeuLeuSerH1sProAspH1sGluAlaLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaThrProAspThrArgHisLeuAspValThrGlyTyrIleLeuSerProGlyPheIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCGCGACACCCGG----GTCGACGTGTGTGGGGCCTGGTGGTGGGCCCGGCTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaAspValLeuValSerLysGlyLeuTleAlaLysTleGlyAsnProGlySerTleAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGACCTGGGCGTGCGCGGCGACCGCCATCGCCGATCTGTCG-----GAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  558 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.96e-36
612.00
45.32%
31.38%
18.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                      ----- CCCGCCCCCCTG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       171
171
76
226
72
                                     657
                                                                      203
                                                                                                        597
                                                                                                                                          183
                                                                                                                                                                           537
                                                                                                                                                                                                               163
                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23
```

```
RESULT 5
AAW87503
ID AAW8
XX
AC AAW8
                                                                       ᇊ
                                                                                           Ş
                                                                                                                    몆
                                                                                                                                         Ş
                                                                                                                                                                    문
                                                                                                                                                                                          Ş
                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                 몋
                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
U
AAW87503;
                   AAW87503 standard; Protein; 1212 AA.
                                                                                              1465
                                                                                                                                            1405
                                                                                                                                                                                           1345
                                                                                                                                                                                                                                          1285
                                                                       544
                                                                                                                                                                                                                  484
                                                                                                                                                                                                                                                                                                                                                                                           1108
                                                                                                                                                                                                                                                                                                                                                                                                                                         1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1003
                                                                                                                                                                   504
                                                                                                                                                                                                                                                                                                         464
                                                                                                                                                                                                                                                                                                                                                                  424
                                                                                                                                                                                                                                                                                                                                                                                                                  404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      344 ValGluileLysGlyCysAspGlyGlyHisGlyIleProThrAsnTrpAspGluIleGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                224 AlaAlaLeuAlaGlnGluPheProGlyAlaPheTyrAlaProHisHisArgSerTyrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 658
                                                                   ThrLeuArgArgSer
                                                                                                                                                                                                          GTGCTCGCACGCACG 1479
                                                                                                            LeuValAsnGlyGlnIleAlaValAspGluGlyLysMetThrGlyThrArgGlyGlyLys
                                                                                                                                   ValLysAspMetSerThrTyrGluGluProLysValProSerArgGlyIleArgPheVal
                                                                                                                                                                               GTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTG 140
                                                                                                                                                                                                                                 GGGCGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACG 1344
                                                                                                                                                                                                                                                       LeuProSerMetIleAlaHisLeuThrSerArgProAlaLysArgLeuSerValTyrPro 483
                                                                                                                                                                                                                                                                                HisArgValHisMetAlaGlySerAspGlyIleLeuHisGlyGlnThrLeuHisProArg
                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaThrSerCysIleMetHisValGlyAsnGluGluAsnValArgGlnIleMetGln
                                                                                                                                                                                                                                                                                                                                                                                                                                CAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCG 1107
                                                                                                                                                                                                                                                                                                                                 CTGTGGGGCACCTTCCCCGGGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCG
                                                                                                                                                                                                                                                                                                                                                                                TTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGlnSerValGlyLysProThrIleGluValPhePheGluIleLeuGlnLysAspLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTG--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     {\tt IleGlyThrThrAsnGluProSerIleAlaSerTyrSerGlyArgArgLeuSerGluVal}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProGlnGluThrLeuLysArgLeuGluAspAlaGluSerArgGluLysIleArgIleAla 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrLeuProGlyCysThrThrLeuAlaAlaLeuLeuProSerTrpAlaSerAlaGlyGly 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACGTGGCCGGCTCCACCATGCTC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CIGCCGCTGATCGAGGCCGCCATGGCGCGC---CAGGACGTCTCGCTGGACGCGTATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleHisLeuThrHisAlaThrLeuAsnPheSerGluAsnLysGlyLysAlaProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheGlnAlaIleGluSerTyrAlaGluMetLeuAspLeuGlyGluSerThrGlyCysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleSerMetValAspLysSerLeuAlaAlaGlyValAspValThrLeuAspThrTyrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCCGCTGAGCGCGCAT-----GGCGGCATCTACGCCACCCACATGCGCGACGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GGACGCACCATCATCACC---TGGTGCAAG----
                                                                                                                                    1464
                                                                                                             543
                                                                                                                                                                                                            503
                                                                                                                                                                                                                                                                                   1284
                                                                                                                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                                                                                                          443
                                                                                                                                                                                                                                                                                                                                                                                 1167
                                                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                                                                                                                                                                                                                                          403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         711
```

밁 Ş В Ş 8 Š

410

390

56

113 GGCGCGCG------ACCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATC 163

 ${\tt AsnSerProThrThrCysThrTrpProThrAlaSerMetAlaSerGlyCysAlaAlaTyr}$ 

429

US-10-009-782-1 (1-1758) x AAW87503

(1-1212)

Gaps:

CCTTCGACCTGCTCGCGGGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGG----GGC ProSerSerAlaValArgAspSerAlaSerThrSerSerArgSerTrpProGluTrpSer 409

32 CCATGTCCC-------AATCCGATT-----

CCCAGC

. 389

112

Query Match:

Best Local Similarity: Percent Similarity:

Conservative: Mismatches: Indels:

```
Pred.
                                                                                                             Alignment Scores:
                                                                                                                                                                                            The present sequence represents a human N-methyl-D-aspartate (NMDA)
Creceptor subunit (NMDAR). The nucleic acid sequence does not contain
Ct the 366 5'-most nucleotides, by the insertion of 11 nucleotides between
Creceptor subunit (NMDAR). The nucleotides at positions
Creceptor subunit of 1301, nor the 15 nucleotides at positions
Creceptor subunit of NMDA-activated cation-selective ion channels. In
Creceptor subunit of NMDA-activated cation-selective ion channels. In
Creceptor subunit of the production of NMDA receptor subunit
Creceptor subunit of such series at also useful as probes to identify and
Creceptor subunit of such series at several NMDA receptor subunit
Creceptor subunit of subunitations of one type (homomeric) or from combinations of subunit proteins of different types (heteromeric). The present invention also comprises
Creceptor subunits to identify and characterise of subunds which affect the function of such receptors . e.g. agonists,
Creceptor subunits to identify and characterise compounds which affect the function of such receptors. The invention
Creceptor subunits to identify and characterise composites and modulators of glutamate receptor function. The invention
Creceptor subunits are also such receptors in the invention also comprises methods for determining whether unknown protein(s) are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA encoding N-methyl-D-aspartate receptor subunit - useful for the assembly of functional glutamate receptor subunits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-APR-1994;
20-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US5849895-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human N-methyl-D-aspartate receptor subunit encoded by clone NMDA22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-069812/06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Daggett LP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (SIBI-) SIBIA NEUROSCIENCES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; N-methyl-D-aspartate receptor; NMDAR2C; NMDA-activated cation-selective ion channel; g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-FEB-1999
                                                                                                                                                                                as NMDA receptor subunits.
                                                                                                                                                 1212 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Columns 253-262; 203pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94US-0231193.
93US-0052449.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9408-0231193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
2.39e-21
411.00
33.61%
25.58%
12.46%
                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          glutamate receptor
```

D X D X

23-FEB-1999 (first entry)

Human N-methyl-D-aspartate receptor subunit encoded by clone NMDA24.

```
밁
                                                                                                                                                            S
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                   US-10-009-782-1 (1-1758) x AAW87504 (1-1061)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present sequence represents a human N-methyl-D-aspartate (NMDA)
Creceptor subunit (NMDAR). The nucleic acid sequence does not contain the 26 860 5'-most nucleotides, has an additional 11 nicleotides (AAV82891) CC between nucleotides 1300 and 1301, an additional 24 nucleotides 2010 cc (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between 12050 and 2351, as set forth in 25 CC (AAV82890) inserted between 12050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between 12050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC (AAV82890) inserted between nucleotides 23050 and 2351, as set forth in 25 CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 3; Columns 261-268; 203pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA encoding N-methyl-D-aspartate receptor subunit - useful for the assembly of functional glutamate receptor subunits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1999-069812/06.
N-PSDB; AAV82910.
266 GlyThrAlaLeuGlyArgCysThrThrSerGlyGlnThr----
                                                                                                             246
                                                                                                                                                                 113
                                                                                                                                                                                           226 ProSerSerAlaValArgAspSerAlaSerThrSerSerArgSerTrpProGluTrpSer
                                                                                                                                                                                                                                                                                           206 ProCysProAlaAlaGlyArgAlaThrThrProSerAlaAlaGlyThrTrpProProThr 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Daggett LP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SIBI-) SIBIA NEUROSCIENCES INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-APR-1994;
20-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-DEC-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US5849895-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; N-methyl-D-aspartate receptor; NMDAR2C; NMDA-activated cation-selective ion channel; glutamate receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens.
                                                                                                                                                                                                                                                               56
                                                                                                                                                                                                                                                                                                                                                  32 CCATGTCCC-------AATCCGATT-----
                                                                                           AsnSerProThrThrCysThrTrpProThrAlaSerMetAlaSerGlyCysAlaAlaTyr 265
                                                                                                                                         GGCGCGCCG------ACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATC 163
                                                                                                                                                                                                                                          CCTTCGACCTGCTGCTGCGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGG----GGC 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1061 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       are functional as NMDA receptor subunits.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94US-0231193.
93US-0052449.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9408-0231193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.46e-21
402.50
33.07%
25.17%
12.20%
                                         ----TGTCGGACGCCGCCGCACACCCGGGTCGACGTGTCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                               ---- CCCAGC 55
278
                                              205
                                                                                                                                                                                                245
```

09   206   regrestrococcycocycnicycococcocococococococococococococococo																							
205 TROGTGGTGGCCCGGCTTCATGGACCACGACGACGACGACGACGACGACGACGACGACGAC	Db dg b	γ <del>β</del> ογ	ду	р <b>У</b>	DP QA	Db Qy	g d	₽ ₽	Qy	ру	물 .	Q B	Qy	рb	Db .	0 B	, Q	DЬ	ΩУ	Ď	Qy	₽	Qy
TGCTCAGGC 2  SGCAATTGCG 3  ACCTGCTGG 3  FPROSETTP 3  CCGCGGGTCA 4  IIII	61 84	36 41 72	97	01	81	61	41	21	29	0 7	383	363 560	548	43	330		83	Ó	N	ø	266	279	0
	rgThrArg 5		GGCCAGCCCAATTTCGGCCGCTCGC		GAAACCTTCCGCATCGGCGCGCGAGCTGG 	GGCGGCATCTACGCCACCACATGCGCGACGAAGGCAGACCATCGTGGCCGCCTGG 	LysIleSerThrHisLeuSerAlaSerAlaArgCysProThrAlaAlaArgSerGlyThr 460	ArgAlaSerValThrArgSerPheSerG		CAGGGGGGCATCGGCATTTCGACCGGCGCCTTCTACCCGGCCGG	hrGlnCysProSerArgThrArgGlyAlaProProAlaArgSerTrpPheTrpSerGly 4	lyAlaGlnLeuSerLeuSerAlaSerProCysGlyCysGlyArgTrpSerSerThr 38	TGCGGGACCTGG5	TGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGGCCA	LeuSerCyaAlaSerLeuTrpTrpProSerProSerSer	SerHisIleAlaLeu	ACGAAGGCGGCTCTTAC		GCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCCGCCCG		GTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCG 3	TrpProSerAlaProSerProSerMetArgasn	TGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGC 26

밁 S

```
RESULT 7
AAB26239
ID AAB2
XX
AC AAB2
XX
DT 23-F
XX
DE Huma
Human N-methyl-D-aspartate receptor subunit NMDARIA #17
                                       23-FEB-2001 (first entry)
                                                                                                                                                                                                           1715 CCAAGGCCGAGCTGGGCCAGA 1735
                                                                                                                                                                                                                                                                                               1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1385
                                                                             AAB26239
                                                                                                             AAB26239 standard; Protein; 1232 AA
                                                                                                                                                                                                                                                                                                                                                                       1616
                                                                                                                                                                                                                                                                                                                                                                                                                                              1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1505 TACAATCCGGCGTGAACGGGGGGGGGGGCGCCCCCCCCCAACCCTGGACGCAAACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1121 Teatceecrcceaceecc---reccecaceaceaececccecarccececcrcrereeecca 1177
                                                                                                                                                                                      857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1061 CCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCA 1120
                                                                                                                                                                                                                                                                                                                                                                                                          908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        602 TrpProCysTrpSerSerProGlySerThrTrpSerThrGlySerCysAlaThrArgCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 944 CCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCG
                                                                                                                                                                                                                                                                                                                                                               AGGAAGTGATGGGCGCGCGCGCGCGCGAGCGCAAGG------CCCGGAAAAATGA 166
                                                                                                                                                                                                                                                                                                                                                                                                 GluProThrAspProAlaAlaProSerSerArgSerSerArgSerProArgSerTrp---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCCAGCATGCCGCGCGCGCTGCTCGCACGCACGCCCTGAGCCCCGGCGCCCAGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProArgClyLeuAlaProAlaHisAlaCysProProThrArgProGlnSerArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeualaProSerArgIleGlyValalaAlaAlaValArgProHisArgProProAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTCCCGCGGGTGCTGGGCCACTATGCGCCGGACCTGGGCCTGGTTCCCGCTGGAGACGG 123
                                                                                                                                                                                  ProAlaPro---TrpProArg
                                                                                                                                                                                                                                                                                          CCCTGCAAGACCTGTCGCAGGCCAGCG---GCATCGCGGTCTCGA------CCCTGT 1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrSerArgProProSerGlyProCysArgProArgAlaValThrThrAlaProPheLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaGlnPro-----GlyArgArgGlyGlyArgCysGlyProGlyThrAlaGlyGly 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProArgAlaAlaProArgArgArgGlyArgProCysProThrSerProGluCysArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProArgAlaGlyAspArgGlnThrGlyValAlaArgArgLeuCysAlaGlyLeuArgSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerThrAlaAlaSerAlaGlyCysArgAlaSerProAlaHis-----ArgGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCG.--AGCTGCAGCCGGCCGGCG 1060
                                                                                                                                                                                                                                                      Pro-----CysThrArgProGlyProGlyAlaArgAlaArgValThrLeuProCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCA 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProAlaArgThrSer.--ArgProAlaArgProArgProAlaCysSerArgPheCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ProAlaThrTrpProArgArgAlaAlaThrProTrpThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----ThrHisProSerTrpThrSerCysTrpLeuSerAlaGlyAla 636
                                                                                                                                                                                                                                                                                                                             ArgThrCysArgCysSerValArgSerSerTrpProGlyGlyArg
                                                                                                                                                                                  862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGG 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TrpProTrpGly 601
                                                                                                                                                                                                                                                                                                                                                                                                                                       -CCGATATCGTGGGCA 1615
                                                                                                                                                                                                                                                        856
                                                                                                                                                                                                                                                                                                                               839
                                                                                                                                                                                                                                                                                                                                                                                                   824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1288
20-APR-1994;
                                 29-SEP-1997;
                                                                     29-AUG-2000
```

밁

97US-0940086. 94US-0231193

밁 Ş

```
/note-
Misc-difference 1209
                                                                                     Misc-difference
US6111091-A
                                                                                                                                                             Misc-difference
                                                                                                                                                                                                 /note-
Misc-difference 1009
                                                                                                                                                                                                                                   /note=
Misc-difference 848
                                                                                                                                                                                                                                                               /note- "encoded Misc-difference 843
                                                                                                                                                                                                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                       Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; N-methyl-D-aspartate receptor; NMDA; NMDAR1A; ionotropic; glutamate receptor; drug screening; animal model; disease diagnosis; genetic screening.
                                                                                                                                                                                                                                                                                                                Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                      /note= "encoded 590
                    /note= "encoded by TGA"
/note= "the coding sequence of this protein contains number of in-frame stop codons which are represented by Xaa in the protein sequence"
                                                                                                                                                                                                                                                                                                                /label= unknown
/note= "encoded
744..745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note- "encoded 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers 280
                                                                                                /label= unknown
/note= "encoded
                                                                                                                                                                         /label= unknown
/note= "encoded
                                                                                                                                                                                                                                                                                                                                                              /label= unknown
/note= "encoded
                                                                       label- UNKNOWN
                                                                                                                                                                                                                                                              /label= unknown
                                                                                                                                                                                                                           ′label- unknown
                                                                                                                                                                                                                                                                                                                                                                                                                'label- unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'label = unknown
'note = "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note- "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'label= unknown
'note= "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          label unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                label- unknown note- "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                 abel- unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     label- unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  label- unknown
                                                                                                                                                 abel- unknown
                                                                                                                                      "encoded
                                                                                                                                                                                                             encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                      "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "encoded
                                                                                                                                                                                                                                                 encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "encoded
                                                                                                                                                                                                                                                                                                    unknown
                                                                                                                                                                                                                                                                                                                          γď
                                                                                                уd
                                                                                                                                     γď
                                                                                                                                                                         by TGA"
                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                                 Ьy
                                                                                                                                                                                                                                                                                     by TGATGA
                                                                                                                                                                                                                                                                                                                                                              by TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Уď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γď
                                                                                                                                                                                                                                                                                                                                                                                                  by TGATGA'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                by TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                      TAG"
                                                                                                 TGA "
                                                                                                                                                                                                             TAA"
                                                                                                                                                                                                                                                                                                                            TAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGA.
                                                                                                                                                                                                                                                  TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                       TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGA.
```

```
밁
                                                                               Ş
                                                                                                         .
B
                                                                                                                                   Ş
                                                                                                                                                            밁
                                                                                                                                                                                      S
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                           ᅜ
                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-009-782-1 (1-1758) x AAB26239 (1-1232)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
494 CCGCGGTCATGCCGGACTTGCAGCGGCGCCGCCGCCGACGAGGAAATCGCGGCCA-----
                                                       499
                                                              434 TGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493
                                                                                                          490
                                                                                                                 374 ACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGT 433
                                                                                                                                                            479
                                                                                                                                                                                      317
                                                                                                                                                                                                                467
                                                                                                                                                                                                                                          257
                                                                                                                                                                                                                                                 449 -----TrpProSerAlaProSerProSerMetArgAsnAlaProArgSer***ThrSer 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present sequence is a subunit (designated NMDARIA) of the human N-methyl-D-aspartate (NMDA) receptor. This is an ionotropic glutamate receptor which contains cation-specific ligand-gated ion channels. The protein and its coding sequence can be used in disease diagnosis and in research to identify other, similar proteins. They can also be used as probes, for example in genetic screening, and in drug screening, as well as enabling the production of animal disease models.
                                                                                                                                                                                                                                                                          200 CGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGC---ACACCCACGACGACGACTACC
                                                                                                                                                                                                                                                                                                    434 TyrGlyThrAla***LeuGlyArgCysThrThrSerGlyGlnThr---------
                                                                                                                                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                                                                                                                      414 AsnSerProThrThrCysThrTrp***ProThrAlaSerMetAlaSerGlyCysAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                                                                                                                                                                            394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                           374 ProcysproalsalsGlyArgalsThrThrProSeralsAlsGlyThrTrpProProThr 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 3; column 255-264; 205pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel DNA fragment encoding human N-methyl-D-aspartate receptor subunit for identifying mutations and for developing drugs against various disease states
                                                                                                                                                                                                                                                                                                                                                                                                                                  56 CCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACGGCAGCAACACCCCGG----GGC 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32 CCATGTCCC------CCCAGC 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Daggett LP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MERI ) MERCK & CO INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-APR-1993;
                                      CysGly---******CysLeuSerCysAlaSerLeuTrpTrpPro-----Ser 513
                                                                                        ProSerTrpSerHisIleAlaLeu-----Gln 498
                                                                                                                                           TGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGG 316
                                                                                                                                                                                                                Leu-
                                                                                                                                                                                                                                                                                                                            GGCGCGCCG------ACCTGG-------GCGTGCGCGCGCG 139
                                                                                                                                                                                                                                                                                                                                                                                                         ProSerSerAlaValArgAspSerAlaSerThrSerSerArgSerTrpProGluTrpSer 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000-578607/54.
DB; AAA95032.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1232 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         լո С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9305-0052449.
                                                                                                                                                                                                -----TyrProLeuTrpArgAlaSerVal***Trp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.32e-19
378.50
33.15%
25.37%
11.47%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1232
189
58
233
265
               547
                                                                                                                                                                                                 478
                                                                                                                                                                                                                                                                                                      448
```

		•																																			
	망	Ω	Db.	Qy	рb	γQ	말	ρy	D.	Qy	В	φ	ర్జ	Ω	ф	Qγ	뫄	Qγ	뫄	γo	₽	Qy	DЬ	· Ω	Дb	Qγ	Дb	Qy	Дb	a	ь	2	-	_	_		-
	839	1247	. 822	1187	805	1130	788	1070	770	1013	763	95	749	893	729	87	7	85	) 69	80		7	•	~1	6		0	9	5	Qy 6	Db 5	Ωy	₽ B	Q <sub>Y</sub>		δ	B
	:	ĀĢ										Ω Ω				2	9 S	4	-	21 0	671 S	64 .	51 /	28 (	32	677	12	44	92	535	574	581	554	560	w	548	514
	Pr	AGATGACCGGCC-	ThrSerArgProAlaArgProArgProAlaCysSerArgPhoCysAraCip	GIGCIG	AlaSerAlaGlyCysArgAlaSerProAlaHisArgGlyArgProAlaPay	GACGG		ATGATO	pSers	CCGGCAAATCCAAGTACGACGTGGTGGTGCACGCCGCACACACACACACACACACACACACACAC		CCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAG	TrpThrSerThrThrTrpGluAlaSerSerThrCysCysTrp	GGCCGG	ArgGlnc		serGlyp:		ArgSer	GC	SerSerThrThrTrpGlnAlaArgThrArgAlaAlaSerTrpSerProf.ouglv.a	ACG	ArgThrArgSerProAlaSerArgTrpGlvSerTrpMetProSerServe	cecree	:::    AlavalThrThrValThrCysThr	GCGGCA	S		Lysseı	CCGAAGAGA-	LeuLeuSerSerSerSerProAspThhArgProThrTr	GCGCC	Cyspr		۳		ProSerSerCysSerSerThrSerAlaLeuSerAlaThrThrArgThr
	OAla	ရေငင	-Arg	GGG	aG13		- E	GAC	erPr	ATCC		CAAG	erTh	CICC	ysGl		**O1		LeuL		ThrT	TGCC	Args	AGGA	Thri	TCTA	н		erAsnT	AGA	Ser	ATCG	oser,		uSer	:	rSer
	Ę		ProA	ACTA	Cyst	TGC	Hisi	3AAC(	oGly:	AAGT		CCCI	rThr	ACCA	.ySer		t Th		euPro		hrTr	GGTG	erPr	AACC	hrva	6	Hisle		lhrs		ser-	GCAT	Ā		eus		Cyss
	끙	-16	laAr	inco	rgA]	GCAC	Prose	CCGA	SerT	ACGA		TCCC	TrpG	Teci	Glne		dri	-TGG	bLeu	-	pGln.	GTGA	:::	TTCC	lThr		E.		rTh			TTCG	hrAr		erAlas		erSe
	*Pro	Acce	gPro	: 600 600	aSer	GACC	rTr.	GTG	prin.	CGTG		CGAA	:: 1uA1	CAAG	lyse		rgse	Sece	AlaT)		alaa.	TCTC	::: SerA	GCAT	Сузт)	-	Alas		LeuC		Ser	ACC6.	gG1y/		e F		rThr
,	Arga.	coc.	Argp	ACCT.	ProA	AGCG	Thrs	AGCG	Seri	TGC		CTGA	: aSer	CAGG	rAla		rCys	CAGG	TALE	- 6	rgTb  - -	GCAC	rgTr	CGGC	hrPr	CACC	eral	CATO	VS A		SerPi	3000	Alap,		ProCvsG		SerA
,	rgAl	ה המחי	roAL	9	laH1	3000 1000 1	erCy	CATC	ChrGI	GG		ဝင္ပင္ပေ	SerT)	ACCG	Argi		sers:	ACGI	Ser	AGAC	cArg/	CACA.	bG1 v	cece	9 1 1 1	CACA	:    - -	900	4.1 ≤	ĺ,	OASE	110	р Н — (	3	vsG1		laLe
	***ProArgArgAla***AlaThrProTrn	Julio City	aCvs:	J.	9	CATC	dris.	CTGG	.ySez	AGC		3000	다. 	CGTG	lnCysGlySerGlnGlySerAlaArgNetArgArgThrArg*	 G	*ThrTrpArgSerCysSerSerTrpGlyThrG	ζ <u>.</u>	, 1007 1107	ecre.	laal	GGT	SerT	AGCT	Sarr	Taca Taca	Cysp	TO A TO A TO	2011			) )			- Teceggacerec-		uSer
	Lar.					6193	Leus	CGTT	Cysa:	TGC		JACC)	SCys:	CIGC	gArg'	Cree	рс1у	!	SArq	, , , ,	aser	ATIGO	CDMet	3G	erse	Casc	roTh	arrn	3 3 5			יין אַ	rase		7 - G		ል l a ጥ
	15 - C	, ,			Ar	CC	erAl	CGGC	laTh	9229	700	regaj	ξΞ.	1000	Thra:	Acco	Thre			TGAT	Trps		, 0		rser,	20.00	Z - 6	mrargs			) — è	5 }	) — (1 		I GAC		3
4	Profrofital:		GAGA		G1v	1000	aG1v	CCGA	rAro	iecco	9	GAAC		CGGA		-	lua			הלה הל הלה	ere.		10		- A		4 6 6 CC	SerP					Dho.	1 1	100	674	3
2	,	96	111:	4	Arap -		מפוב	CCAT	) (2)	666		illoc.		200	*		QH1s		direction of the contract of t		<u> </u>		1	2 7 7				Phese	1			1		ecrae		U	0
12.0		=	GGTAS	2		C 11			3=	) Let		á		7	P (	3 4	Arga		9 – 2 3 – 2 3 – 3		ייר פיי	- CMeCI		1	ATCG	Y	AGCG	erGly		0001	1:::	erery		T.T.D.			1
reu	:				- 6	TALE	2=2							- 7	1300		3		LeuLeuProLeuAlaThrAlaSerProCysArgArgThrProThrclw	5		creare		-di		111.5		lyLeuLys	;	;	CCGCCCGCGCCACCA	SOLA		nrInrG		GLuAIa	
900	ก่อ	. u	1246	179	221	0 0		112	707	100	, ,			,	7 0	ο ,			700					a	, ,	a						u	:: ଜ	r a	, ; , w	u	,
			•			•	٠	,		•		, ``	- "				· +		0 iu	, ,	· 6	ò	S W	Ö	27	ı ü	76	611:	ü	1	34	73	580	ü	59	ü	i •

```
RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
Novel nucleic acid encoding human N-methyl D-aspartate receptor
                                          WPI; 2002-096550/13
N-PSDB; ABI99189.
                                                                                             Daggett LP,
                                                                                                                                                             20-APR-1994;
20-APR-1993;
                                                                                                                                                                                                                                                 13-NOV-2001
                                                                                                                                                                                                                                                                                 US6316611-B1
                                                                                                                                                                                                                                                                                                                                                  Human; N-methyl D-aspartate receptor; NMDAR; genetic
glutamate receptor; drug; modulator; receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAM47961 standard; Protein; 1232 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1008
                                                                                                                            (MERI ) MERCK & CO INC.
                                                                                                                                                                                                                                                                                                                                                                                             Human NMDA receptor subunit SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                              05-MAR-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1721 CCGAGCTGGGCCAGA 1735
                                                                                                                                                                                                               29-SEP-1997;
                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAM47961;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1508 AATCCGGCGTGAACGGGGCGCGCGTGCCGCCCCTCCCAACCCTGGACGCAAACCGCTACA 1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1388 CCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCG 1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1328 TGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCG 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   974 ProThrAspProAlaAlaProSerSerArgSerSerArgSerProArgSerTrp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pro---TrpProArg 1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cys***ThrArgProGlyProGlyAla---ArgAlaArgValThrLeuProCysProAla 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCAAGACCTGTCGCAGGCCAGCGGGATCTCGA------CCCTGTCCAAGG 1720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTGATGGGCGCGCGCGCGCGCGCGAGCGCAAGG------CCCGGAAAATGACCC 1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerArgProProSerGlyProCysArgProArgAlaValThrThrAlaProPheLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGCCCCTCCCCCCCCAATACGGCCCCAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgAlaAlaProArgArgArgGlyArgProCysProThrSerProGluCysArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCAGCATGCCGGCGCGCGTGCTCGCACGCACGGCCGCGTGAGCCCGGGGGGCGCCAGCCCTTAC 1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgAlaGlyAspArgGlnThrGlyValAlaArgArgLeuCysAlaGlyLeuArgSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaProSerArgIleGlyValAlaAlaAlaValArgProHisArgProProAlaArgPro 876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgGlyLeuAlaProAlaHisAlaCysProProProThrArgProGlnSerArgAlaPro
                                                                                            Lu C;
                                                                                                                                                            94US-0231193.
93US-0052449.
                                                                                                                                                                                                             97US-0940035.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -ArgThrCysArgCysSerValArgSerSerTrpProGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                         drug; modulator; receptor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GlyArgArgGlyGlyArgCysGlyProGlyThrAlaGlyGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGG 1327
                                                                                                                                                                                                                                                                                                                                                                                               43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----CCGATATCGTGGGCAAGG 1618
                                                                                                                                                                                                                                                                                                                                                        screening;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----- 1600
   2
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             896
```

밁 Ş B 밁 S

```
Consider Albasis are useful for the production of NADAR subtrates to the combination of the archeror subunit to proteins (ABB5503-ABB5530, AAM47961), as probes and to identify and isolate nucleic acids encoding related receptor subunite. Genetic concenting can be carried out using the nucleotide sequences as probes to determine if any abnormalities exist with respect to any of the condensus glutamate receptors. Also, patients having a family history of the disease states related to glutamate receptor dysfunction can be screened to determine if they are also predisposed to such disease states.

Constructions of the are useful for producing selected ANDAR comprising (I) are useful for producing selected ANDAR comprising (I) are useful for producing selected ANDAR comprising (I) are useful for contamination from many other receptor proteins whose presence can interfere with analysis of a single construction of the effect of a drug substance on a particular receptor subtype or combination of NADAR subtypes allows the construction of mannation of NADAR subtraction of NADAR subtraction of NADAR subtraction of NADAR subunits and to perform initial in vitro construction of NADAR subtraction of NADAR subunits.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to nucleic acids (I, AAI99167-AAI99196, ABA05910)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subunit, useful for expressing the subunit and as probes in genetic screening techniques, to identify patients having neuropathological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              encoding human N-methyl D-aspartate receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 3; Column 257-264; 206pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (NMDAR) subunits.
```

Sequence 1232 AA

<b>£93</b>	TGCGGGCCACGCCGGCGGCGGCTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCG 493	TGCGGGCC	434	Qy
86	ProSerTrpSerHisIleAlaLeu	ProSerTr	490	밁
433	ACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGT 433	ACCTGCTG	374	Ϋ́
489	TrpLeuAlaAlaMetAlaProSerProProArg 489		479	정
373	GCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCCTGG 373	GCAATTGC	317	δō
478	LeuTyrProLeuTrpArgAlaSerVal***Tp 478	Leu	467	D <sub>D</sub>
316	GTCGCGACATGACGCCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGG 316	TECTCAGE	257	γ
466	TrpProSerAlaProSerProSerMetArgAsnAlaProArgSer***ThrSer 466	Tr	449	망
256	TGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACC 256	CGGGCCTG	200	QY.
448	TyrGlyThrAla***LeuGlyArgCysThrThrSerGlyGlnThr 448	TyrGlyTh	434	g
199	CCGCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGT 199		140	δÃ
 433	AsnSerProThrThrCysThrTrp***ProThrAlaSerMetAlaSerGlyCysAlaAla 433	AsnSerPr	414	밁
139	113 GCGCGCCGACCTGGGCGTGCGCGCG 139	GGCGCGC	113	Qy
413	ProserSerAlaValArgAspSerAlaSerThrSerSerArgSerTrpProGluTrpSer 413		394	В
112	CCTTCGACCTGCTGCTCGCGGGCGCACCCTCATCGACGGCAGCAACACCCCGGGGC 112		56	Qy
393	ProCysProAlaAlaGlyArgAlaThrThrProSerAlaAlaGlyThrTrpProProThr 393		374	닭
55	AATCCGATTCCCAGC	CCATGTCCC	32	Ϋ́
	US-10-009-782-1 (1-1758) x AAM47961 (1-1232)	-782-1 (	10-009	-Sn
				£
	11.47% Indels:	ch:		Query
	33.15%	Percent Similarity: Best Local Similarity:		Perc
	Length:		re:	Score:
		Alignment Scores:	gnment	A11

```
2222222
The present sequence is a subunit (designated NMDARIA) of the human N-methyl-D-aspartate (NMDA) receptor. This is an ionotropic glutamate receptor which contains cation-specific ligand-gated ion channels. The protein and its coding sequence can be used in disease diagnosis and in
                                                               Novel DNA fragment encoding human N-methyl-D-aspartate receptor subunit for identifying mutations and for developing drugs against various disease states
                                                  Example 3; column 633-672;
                                                                                                      WPI; 2000-578607/54.
N-PSDB; AAA95033.
                                                                                                                                 Daggett LP,
                                                                                                                                                                  20-APR-1994;
20-APR-1993;
                                                                                                                                                (MERI ) MERCK &
                                                                                                                                                                                                                                                                                                                                                                 /note= "encoded by TAA"
                                                                                                                                                                                            29-SEP-1997;
                                                                                                                                                                                                              29-AUG-2000.
                                                                                                                                                                                                                              US6111091-A.
                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                 /_apel= unknown
/note= "encoded
Misc-difference 692
                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Misc-difference
                                                                                                                               Lu C;
                                                                                                                                                                                         97US-0940086.
                                                                                                                                                                                                                                                                                                                                                                                               /label= unknown
/note= "encoded l
e 697
                                                                                                                                                                 94US-0231193.
93US-0052449.
                                                                                                                                                CO INC.
                                                                                                                                                                                                                                                                                         /label- unknown
/note- "encoded by TGA"
1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /label= unknown
/note= "encoded
= 593..594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label= unknown
/note= "encoded
: 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /label unknown
/note "encoded
431
                                                                                                                                                                                                                                         /note= "encoded by TGA"
/note= "the coding sequence of this protein contains number of in-frame stop codons which are represented by Xaa in the protein sequence"
                                                                                                                                                                                                                                                                                                                     /label= unknown /note= "encoded by 1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
258
                                                                                                                                                                                                                                                                                                                                                 /label= unknown
/note= "encoded by
                                                                                                                                                                                                                                                                                 label- UNKNOWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= unknown
/note= "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   label unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'label≃ unknown
                                                                                                                                                                                                                                                                                                                                                                                       .abel- unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           label unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "encoded
                                             205pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                by TGATGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γď
                                                                                                                                                                                                                                                                                                                                                                                                      by TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             by TGATGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           by TGA"
                                                                                                                                                                                                                                                                                                                          TAG
                                                                                                                                                                                                                                                                                                                                                   TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGA"
                                                                                                                                                                                                                                                           ω
```

^		~											٠							
. ¥	용	Υ.	₽ ₹	?	\$ B	\$ B	Qγ	P 5	B 2	₽	δδ G	ΩУ	P 5	· B	8, B	oy.	O B	0v-1	Alig Pred Scor Perc Best Quer DB:	3333×3
Оу 644	428 Proproser***SerLysSerAsnThrSe	CGCCCC	Db 410 TrpSerGlyProSerLeuLeuSerSerSerSerProAspThrArgpro	390 SerSerThr	LeuSerLeuSerAlas	oSerSerCysSerSerThrS	CATGCCGGACTTGCA	Qy 434 TGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGGCIGGCCGGCGGCCGCTGTATGGTGGGCCATTCAACGCTGCGCGGGCGG	374 ACCTGCTGGACGAAGGCGGCTCTTAC	315	303 317	257 TGCTCAGGCGTCGCGACATGA	200 CGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGC	270 Tyre	250 AsnSe	11	210	-10-009-782-1 (1-1758) x AAB26240 (	@ @ H O @ ト-	research to identify other, similar probes, for example in genetic screen as enabling the production of animal Sequence 1081 AA;
CATCGAGGTGTGCCGGC 661	rThrLeuCysArgAlaSerValThrArgSer 447	643	CCGGCGCCTTCTACCCGCCCG 619 :::             SerSerProAspThrArgProThrTrp 427	CCGAGGAAGCCATGG 5,74     :::     AlaProProAlaArgSerTrpPhe 409	erProCysGlyCysCysGlyArgTrp 389	GluAla 36	ACGAGGAAATCGCGGCCA 547		CGTTTCGAGCGCTTCGCCGACTACCTGGACGCGT 433		CCC#66	TCACGG 3	CACACCCACGACGACAACTACC 256	rGlyGlnThr 284	p — c	bser bser	CAGC  ::: oThr		1: 1081 9: 189 vative: 58 ches: 234 :: 276	roteins. They can also be used as ing, and in drug screening, as well disease models.

448 PheSerGlyLeuLys1leSerThrHisLeuSertAlaSerAlaRyGySPFOThrAlalia 467 662 CGCTGAGGGGGATGTAGGGGGATCTAGGCGACCCCACCACAGGAAGGA

```
RESULT 10
ABB56523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
Novel nucleic acid encoding human N-methyl D-aspartate receptor 2A subunit, useful for expressing the subunit and as probes in genetic screening techniques, to identify patients having neuropathological
                                                                     WPT; 2002-096550/13.
N-PSDB; ABA05910.
                                                                                                                  Daggett LP,
                                                                                                                                         (MERI ) MERCK & CO INC.
                                                                                                                                                                        20-APR-1994;
20-APR-1993;
                                                                                                                                                                                                                    29-SEP-1997;
                                                                                                                                                                                                                                                                          US6316611-B1.
                                                                                                                                                                                                                                                                                                                   Human; N-methyl D-aspartate receptor; NMDAR; genetic screening;
glutamate receptor; drug; modulator; receptor.
                                                                                                                                                                                                                                               13-NOV-2001
                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                   Human NMDA receptor subunit SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                       05-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                      ABB56523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABB56523 standard; Protein; 1081 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1643 CCGAGCGCAAGG------CCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCG 1693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1592 CGGCCCCAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                845 CysserValArgSerSerTrpProGlyGlyArgProCys***ThrArgProGlyProGly 864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      831 SerArgSerSerArgSerProArgSerTrp-------ArgThrCysArg 844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    791 GlyGlyArgCysGlyProGlyThrAlaGlyGlyThrSerArgProProSerGlyProCys 810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            774 ArgProCysProThrSerProGluCysArgAlaAlaGlnPro-----GlyArgArg 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgProArgAlaValThrThrAlaProPheLeuGluProThrAspProAlaAlaProSer 830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ę
                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                       94US-0231193
93US-0052449
                                                                                                                                                                                                               97US-0940035
                                                                                                                 ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----CCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGCCTGCGCG
                                                                                                                                                                                                                                                                                                                                                                     44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1600
```

Example 3; Column 265-272; 206pp; English.

The invention relates to nucleic acids (I, AA199167-AA199196, ABA05910) encoding human N-methyl D-aspartate receptor (NMDAR) subunits. The nucleic acids are useful for the production of NMDA receptor subunit isolate nucleic acids encoding related receptor subunits. Genetic screening can be carried out using the nucleotide sequences as probes to endogenous glutamate receptors. Also, patients having a family history of to determine if any abnormalities exist with respect to any of the disease states related to glutamate receptor dysfunction can be screened Expression vectors comprising (I), receptor subunits encoded by (I) and subunits and in specific combinations, as well as antibodies to the

Qy U	P 29	Дb	Ş Ş	ξ <b>δ</b>	₽	Qγ	g 9	B	δ 6	3 5	₽ ₽	Qy .	Дb	δ	Дb	<b>Q</b> Y .	B 4	<u> </u>	γ	유 성·	•	Alls Pred Scor Perd Best Quer DB:	8888888 <del>%</del> &
LeuLeuSerSerSerSer	75CCAGCGGCGCCATCGGCATTTCGACCGGCGCTTCTACCCGCCCG	AlaProProAlaArgSerTrpPhe 4	38 3-1-2	548TGCGGGACCTGG 559	350 ProSerSerCysSerSerThrSerAlaLeuSerAlaThrThrArgThrSerProGluAla 369	CCGCGGTCATGCCGGACTTGCAGCGCGCGCGCCGACCGAC	TTCAACGCTGCGCG	326 ProserTrpSerHisileAlaLeu		17 GCAATTGCGGCATCAGCCTGGCGCGCTGGCGCGACGCCAACCCGGCCG	03 LeuTyrProLeuTrpArgAlaSerVal***Trp	GGTCACGG 3	285TrpproSerAlaproSerProSerMetArgAsnAlaProArgSer***ThrSer 302	ACGACGAC A ACTIACO	270 TyrGlyThrAla***LeuglyArgCysThrThrSerGlyGlnThr 284	ACCGCATCGCCGCCATCGGCGATCTGTTCCT	·ω		CCTTCGACCTGCTGCTCGCGGGCGCACCCTCATCGACGGCAACACCCCCGGGGC	32 CCATGTCCCAATCCGATT	10-009-782-1 (1-1758) x ABB56523 (1-1081)	Alignment Scores: 2.11e-18	receptor subunits substantially free of contamination from many other receptor proteins whose presence can interfere with analysis of a single NKDAR subtype. The availability of desired receptor subtypes allows the observation of the effect of a drug substance on a particular receptor subtype or combination of NMDAR subunits and to perform initial in vitro screening of drugs or modulators in a test system that is specific for humans, a human NMDAR subtype or the combination of NMDAR subunits. Sequence 1081 AA;

δĀ	B 2	) D	γQ	B 7	0v	문 5	Ş .	y Ya	g b	· γΩ	da da	Qy	닭	Q	dd dd	Qγ.	뮍	Qy	Db	Qy	מם	γo	Д	γQ	ы	0	н	2	-	_		_	_
141	7:	. 7	1292	0 1	126	67		, H		_										٧	ъ	4	Ö	Ψ.	B	γQ	Дb	Ϋ́	Дb	Ϋ́	B	δÃ	₽
2 AC	734 CY	· >	ດ	*F (	J (		= ;	S 12	N	.094 A	627 S	.037 т	612 -	977 T	8 909	917 🌶	586 2	872 -	566 C	863 1	548 /	824 (	528	785	508	752	488	722	468	662	448	644	428
1111	ATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGCCATCCAT		GCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGGTGTTGTTCACCACACACA	ArgArgAla***AlaThrProTrpThrAlaProLenala	מחברים	AUCTORITIC COGCTGGAGACGCGGTATGGAAGATGACCGGCC-		AGCGCCGCATCCGCGCCTGTGGGGCACTTCCCGCGGGTGCTGGGGCACTATGCGCGCG	ThrSerCysTrpLeuSerAlaGlyAlaSerThrAlaAlaSerAlaGlyCysArgAlaSer	GCGCA	 	Teccce	:::    :::    :::     :::     :::     :::     :::	GAGCG	SerSerThrCysCysTrp-	AGGACCGCGTGCTGGCGGGCGGACGCACCATCATCACCTGGTGCAAGCCTTTTCTTTTCTTCAA			:::    	AGGACGTCT-		3CGAG₽		ACCAC!	ProGlySerTrpMetProSerSerMetMetLeuLeuSerSerThrThrThrGlnAlakro	GCCGCGAGCTGG-		rescesseres -		CGCIG	PheSe	:	Propr
11111	GCCACCTTCGA         :::  COPTOPTOThra	alArg	GCAGG	11 11 1a***				GCATO	ysTr Y	CCTG	31ySea	AG		3GCGC(	ThrCy:	GCGTG	MetAr	 G	Serir	TCT	Procy	CGCTG	;;  AlaA1	AGGTO	/SerTi	AGCT	ArgTrpArg	CGCI	rGlyT)	AGCGC	rGlyL	:	oSer*
CTGGC	rcgaac ;;; rhrarg	ProH1:	cceee	eccie     Alaih				cecec	LeuSe	CGTTC	Cysal:	TGCAC		SACCTO	SCYST:	CTGCT	 gArgTi	CGCTGGACGCGT	pGlyT	;	SArg-	CCGCT	aSerT	ATGGG	:pMetF	Ğ	CpArgi	GAGG .	hrSer/	GCATG	euLys:		**Ser
'AAGAG	ProGl	BArgPı	PACTIC	rProTi	Carraf		a Programme	CTGTG	rAlag	Geccc	aThra	ccec	PProI	GATG	ф	360060	HArgi	CCCT	hrGlu			GATCG	rpSer	CCAGC	roSer		hrArg	į	llaval	10990£	[leSe]		∟уяЅеı
CAGGC	'ACCGA .nSerA	OProA	CCCA	CoThra	Ysarge	GACGGC	TyArgi	GGGCA	lyAla	GACCA	тдСув	cece	rpGly	AGTCG		ACGCA	*		ArgH1s		ArgTh	AGGCC	ProLe	CCAAT	SerMe	ŀ	SerPr		Thrib	TCTAC	ThrHi		(AsnT)
GITCA	AACACCCTACCGAGCGCGCCGCCGCATCCATTCCGTGTACGTCA           ArgProGlnSerArgAlaProArgAlaGlyAspArgGlnThrGly	laArg	CCTGG	lapro	)Ln	GGTAI	TOALE	TGTGGGGCACCTTCCCGCGGGGTGCT	SerTh	TGATC	Pro	AGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGC		caecc		CCATC	AlaAl	ATCCC	ArqAs		ArgThrProThrGlySerGlyPro*	- A22	: uGlyLe	TCGG	tMetL		S		TValT	GCCAC	PheSerGlyLeuLysIleSerThrHisLeuSerAlaSerAlaArgCysProThralaals	:	roProSer***SerLysSerAsnThrSerThrLeuCysArgAlaSerValThrArgSer
CCGGCC	CCGCC	ProAr	TGGTG	Lanal		GGAAG	LATGTh	00000	Alaal	3GCTCC		PACTTO	ocystı 	GAGCG		ATCAC	AlaAlaSerTrpThrSerThrThrTrpGlnAla	TACOT	nTrpA		urGlys			Caca	snezue		erArgTrpAlaLeuArgLeuSerLeuSe		hrCyst	CCACA	erAla		hrLeu
AGCAT	GCATO	gG1yLe	TTOGE CO		:	ATGAC	rser-	GTGCT	aSerA	GACGG		ATGAT	rpSers:	GGCA.		reen.	rpThr		rgGln	:	erGly		rgser		erser	Acc	rpAla		rhrPro	raca.	III::		CVSAT
111	CATTC	uAlar	100000		roAla	1111	Arg	GGGC	laGly	Č	Thr#1	GACG	erPro	ATCC		icaaar Aaar	SerTh		CvaGl		* 1		LeuLe		Thrith	in GCCG	Leuar	- 22	Thrile	SACCAR TOUR	ArgCv		TALAS
ccece	cGTGT	roAla	(Teleta		-ProAlaThrTrp*		ProAl	ACTAT	CysAr	Tecce	:::       H19Pr	AACCC	:: Glyse	AGTAC		, Commo	That's		Serci		*ThrT;		uProL	11100	T	Green	qLeuS	ACC THE	Stasa.  ::: 			1	rva lg
GGCGCGCCGGTCTGGCAAGAGCAGCATTCACCGGCCAGCATGCCGGCCG	ACGTC	H1sAl	TATEL	Brosers of John Hill	)***Pro	TGACCG	ArgProAlaArgPro	111	gAlas	CACGA	::   :::	GACGT	11211 11111	GACGT			יינוניאט. אמיינוניאט	Circulation of the state of the	201		Teececece        :::   ThrTrpArgSer		uLeuProLeuAlaThr	THATE	)	ACGTGCCGGTGGTGATCTCC	uArqLeuSerLeuSer		HISET			,	ייל מיאל
G 147:	A 1411 Y 753	.a 733	_		co 693		ro 677	CG 1210		<b></b>			0 – 0	.) _ (	511		12 KOS		7 0	3	GET 565		Thr 547				4 G						
,_		-	•	P		4		ō		ö	- ;	ŭ	<b>о</b> (	, y	<b>.</b>	h (	ло		n  -	، د	ŭi ä		<b>5</b>	5 3	ĭ ;		507	<u> </u>	187	3 6	661	4	j

```
Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
       The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, and for chromosome polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags to restore normal activity of (II) is useful in gene therapy techniques (II). (II) is useful for generating antibodies against it, detecting or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                    Claim 20; SEQ ID No 33892; 103pp; English.
                                                                                                                                                                                                                          New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
                                                                                                                                                                                                                                                                                                                             WPI; 2001-639362/73.
N-PSDB; AAS67720.
                                                                                                                                                                                                                                                                                                                                                                             Drmanac RT, Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30-MAR-2001; 2001WO-US08631.
                                                                                                                                                                                                                                                                                                                                                                                                                   (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-OCT-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel human diagnostic protein #3524.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABG03533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABG03533 standard; Protein; 900 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1694 GCATCGCGGTCTCGA------CCCTGTCCAAGGCCGAGCTGGGCCAGA 1735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1643 CCGAGCGCAAGG------CCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGGC 1693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     865 Ala---ArgalaArgValThrLeuProCysProAlaPro---TrpProArg 879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      845 CysservalArgSerSerTrpProGlyGlyArgProCys***ThrArgProGlyProGly 864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1601 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1472 CACGCACGGCCGGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGT 1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   811 ArgProArgAlaValThrThrAlaProPheLeuGluProThrAspProAlaAlaProSer 830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         791 GlyGlyArgCysGlyProGlyThrAlaGlyGlyThrSerArgProProSerGlyProCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               774 ArgProCysProThrSerProGluCysArgAlaAlaGlnPro------GlyArgArg 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                754 ValAlaArgArgLeuCysAlaGlyLeuArgSerProArgAlaAlaProArgArgArgGly 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerArgSerSerArgSerProArgSerTrp-------ArgThrCysArg 844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGCGCCTGCGCG 1642
                                                                                                                                                                                                                                                                                                                                                                             Tang YT;
molecular weight markers and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             810
```

CC diagnostics fies file polymented expression of biological acc classostics for season gene mapping, identification of biological acc crespons the for season gene mapping, identification of mutation of motivation of the polymented file polymented for traits to assess biological and to produce of the sequences and sequences of other traits to assess biological actions between the sequences of the sequences of the sequences of the sequences of the sequences of the sequences. Sequences of the invention of the sequences of the sequences of the sequences. Sequences of the sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Sequences. Sequences of the sequences. Sequences of the sequences. Sequences of the sequences. Se
requences have applications in expression or biological activity sequences have applications in your dentification of mutations or other traits to assess biodiversi no products dependent on DNA and their present novel human tent did not appear in the printed electronic format directly from Wiples and their vention.  1

TTGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGT	304 TGGTGACGCCCTGCGAGATC	γ
CGGGCGGGTTGGCGTGCGCCAGCGGCCAGGCTGATGCCGCAATTGCCCGTGACCACCG	364 CGGGCGGGTTGGCGTGCGCC	B 8
YValValGluGluArgGluGlyProArgGlyProG	74 5	, B &
SGCCGCCGCCGCGCAACGCTACCGCTAGTAGTCGGCGAAAGCGCTCGAAACGGTAAG	59 -	\$ 5 S
GCAAGTCCGCGATGACCGCGGCGCGCGAGCGTTGAATGGCCCACCATACAGGCGGCGTTGA 	4 4	, 4d
CATGGCTTCCTCGGCCAGGTCCCGCATGGCCGCGATTTCCTCGTCGGTGGCGGCGCGCGC	24	P 04
TGGTGGCGGGCGGCGGCGGGTAGAAGGCGCCGGTCGAAATGCCGATGGCGCCGCTGG	12	B 5
GGTTGGCGTAGATGCCGCCATGCGCGCTCAGCGGCCGGCACACCTCGATGATCTCTTCGG :::	92	\$ B 5
794 GGCGGATGCGGAAGGTTTCCTCCAGCGCGGCCACGATGTGCTCGCCTTCGTCGCGCATGT 69:	/54 GGCGATGCGGAAGGTTTO	B 4
euArgH1sGlyGlyGlyAlaGlnLysThrArgProSer	352 GlyGlyGlyAlaAlaProL	P 5
roglyProCysAlaProArgGlyGlnProGlyLeuPro	332 AlaArgArgCysProProF	B 1
	312 IleGlyArgArgSerProc	S B
	292 ProArgProGlyAlaGlyI	8 8
	895 CCACGT	Q
GCGTCCGGCCAGCAGCAGCAGCGGTCCTGCTTGAGCATGGTGGAGCCGG 	943TGCGTCCGGCCAC	B 68
2GlyArgAlaTrpProSerSerAlaAlaAlaArg 27	262GlyArg/	90
.euproA1aA1aA1aG1uproArgG1yproG1yTh .CTTGCACCAGGTGATGATGG	m 4	Ş Ş
GGATTTGCCGCCCTCGCCGCCGACTTCATCCAGGTCG	1042 CGGGCACCACGTCGTACT	3 5
	N	ğ
GAAGTAGATGGCGCCGGCCGGCTGCA	1090 CGTCGGGTTCGTCCATCA	Qy .
GGAGCCGATCATGGTCGGGCCGAACGCCAGGATGCGCTGCA	1150 CGTCGTGCGGCAGGCCGTCGGAGCCGATCATGGTC           222 ArgThrAlaAla	D 84
 	ວ	₽
	1198 GCCCCAGCACCGGGGAAGGTGCCCC	Qy

83888888888	XX PPT XXX	NX X X X X X X X X X X X X X X X X X X	RESULT AAB598 ID AC XX AC AC XX DT DE DE DE DE R XX XX XX XX XX XX XX XX XX XX XX XX X	40 A A A A A A A A A A A A A A A A A A A	Db Qy Db
Disclosure; Fig 12; 122pp; English.  The present invention relates to toluene degrading enzyme genes and proteins tuth (see AAF23629 and AAB59831), tutl (AAF23630 and AAB59832), tutl (AAF23631 and AAB59833) and tutg (AAF23632 and AAB59834). The toluene degrading enzymes are homologues of pyruvate formate lyase. The toluene degrading enzymes are useful for biological treatment of organic compounds and in particular for the degradation of toluene and its analogs contained in liquid or solid waste source. The present sequence is a protein sequence encoded by toluene degrading enzyme gene, TutD/E.		WO200072650-A2.  07-DEC-2000.  24-MAY-2000; 2000WO-US14298.  01-JUN-1999; 99US-0323872.  (UYOH-) UNIV OHIO.	AAB59827  AAB59827  ID AAB59827 standard; Protein; 1592 AA.  XX  XX  AC AAB59827;  XX  XX  XX  XX  DT 04-APR-2001 (first entry)  XX  XX  XX  XX  Toluene degradation; enzyme; waste degradation; TutE; TutD.  XX  XX  XX  XX  XX  XAnthomonas maltophilia.  DS Geobacter metallireducens.  XX  XX  Accoarcus tolulyticus.	187 GGGTGTGCGCGGCGGCGTCCGACAGATCGC	

	Ş	문 :	Ş	B :	δ.	₽ 5	§ §	δ	B	Qy	8 8	용	Ş.	Db	γQ	Ď.	δ	ĝ	γQ	밁	VQ.	Д	δ	밁	ğ	밁	ð	SD	DOBBOB	့ နှ	×
	647	7	٥	G: -	57	732	<u> </u>	47	69	4	67		ω	0	N	<b>o</b>	N	o.	ده	СI								-10-	Pred. No Score: Percent Percent Best Loc Query Ma DB:	. 0	×
8 <u>-</u>	Ä	Ala		ያ :: የ	i i	4 8		9 AT	2 ro	O	N o	-	26 GC	46 as	ດ	26 r	<u>ω</u>	8 8	30 -	87	94	567 T	167 -	547	128		80	-600	U -	Sequen	
  TATGAS	9	ys:		Ser		GAGG-	4-	CAAC	Alacy	GCGGCC	ຯ ⊹ ດ		ATC	Φ-	ନ	ę	: 1	Threi		ThrSer	CGTGTC	rpAr		11eG1	:	er:	GCACC	782-1	nila Sim	рсе	
pArg	ij	= 1		Argser	Yar to		rgCys	GCTG	'sAla	ä	ASECT	pProL	CCIG		ACATG		יים האני היים האנים	VA la			CGGG	gLeuCy	:	lnPheS		roser		-1-		159	
SerAr	3000	CCGGC	4	777	Pros		ArgCysSerProAs	Tececece-	ArgAr	i	TACCG	euG1	GCGC	IIII	Acec	erAlaAlaAlaProArgar	EA STATES THE THE SECTION	Thrao		-GlyProAlaGlyPro	GGCCTGGTGGTCG	8Va		erAr		IIII      		17581	ŧу:	2 AA	
Argalas		-BArq	Tacde	CCA	erser	CGCGG	ProAsp	දු	gPhe		STITC    -	/ArgG	ЭСТО	:::::: spAlaArgAsn-	oredo sfirst	AC AC	5. Turd	1	ļ.	aGLy	rggr	lArgLe		Pro		PALAC	} }		4.05 339. 33.3 26.7 10.2	•	
serArgs			ALAGI	11-166 11-1666	ProA	CCAT	Argc	CGGT	lary		CGAGCG	ProLeuGlyArgGlyCys	ලිදුව	spalaargasn	Table T	I ACA	Varan	<b>.</b>	:	י סי	cecec	uTr		19Cy		VSAC		Л. D	)5e-16 ).00 33% 79%		
gserA	, trop	7 (E)	YPro	GCCA	aG1y	AAATCGCGGCCATGCGGG-	 	CGGTCATGCCGG-	rArgA		CTTC	ThrAs	70000	: 2	dordo	ACTAC	nrGlyc			OArgi	G .	1yA		PATGA -		11100	7) (1				
recececan	Our fricht geralapros	5000	ArgAL	CCAGCGCCCATCGGCATTT	erProAlaGlyAlaProGlyAl		rgī	CGG		- Gald	TTTCGAGCGCTTCGCCGACTACCTGGA	ThraspProCysCysProProAla	AGCCTGGCGCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACC	19099	roSer	AlaalaaraProArgargargargargargargargargargargargargar	уСувРт		9	D	GCTTCATCGA-	ס	020	OPISCAL SECRET SECURITION OF S	1000		-1592		Len Mat Con Misi		
YICTA	Joera	3000	aAlaA	ATTT-	oGly?		29		gLeuGlvProArgCvgThrScr	TABCC	CTACC	сузсу	6000	CACCA	Hisi	CAG-	roArgAlaPro		S P P P		TCG -	Alapr		A L CATO	CATA	2 – 6 2 – 6 2 – 6	٣		Length: Matches: Conservat Mismatche Indels: Gabs:		
CGCCA	LaPro	1111	rgPhe		Mathrey	- <del>;</del> - <del>,</del>	 	ACTTG	roard	dera-	TGGAC	SProj	, , , ,	CGGT	leSer		laPro		i G			44190 - 190	1000		erser	CGCCG			tive:		
CCCAC     ProLe	SerI	CCÁC	aArgA		w	r Creec		נשפני		TOLA	CCGT	ProAl	CTGG	GGTCA	SerAl		SerG	- :	Arga		1000	COCACACO :::	TWING	CCATO	ValAı	ACCT		ŧ	- N N U N H		
ATGCG      uCysg	erIleArgAr	CGAAG	rgCys		SerArgArgP	CGAGO	erPr	in the real	Legal C	euArg	TGCGG	II	ACCTO	5555	erSerAlaAlaTyrG		lyAla	•	rgLeu		- Ar ge	ACCCC	gren	GCG	SerValArgMetG	Ğ			ων. ω <u>φ</u> .		
lyA1	ArgGl	CHACCOGCOCTTCTACCCGCCCGCCCGCCCGCCGCCGAAGAGATCA	gCysArgAs		Arger	ACCTGGCCGAGGAAGCC	ArgCysSerSerProSerPro	CCCCCCCCCCCA		-	GCGGCTCTTACCGTTTCGACCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGC	ThrAr	TOTAL CO.	ATT	FyrGl		SerArgs		<b>GLeuAspTrpC</b>		Tyse		/alcy	ArgCysArgAlaCysAlascanscans ::	GlnAr						
a 809	79	64	77	59	0 75	LT.	7 0	, ,		6		ס ע	J .	ရှိ	yAl 6	- 6 - 6	æ	-	4	'			sPro	-13	gArg	i					
<b>₩</b> 01		σ	ĭ	ы	ŭ	71	31 .	12	78	92	4	72	n w	i ii	- 6	265	626	230	909	230	586	مت د	566	σ	546	127			•		
		•																													•

09
9 767  b 829  y 767  b 829  b 829  y 827  b 844  y 881  1043 p 983  1103 p 1043 p 1064 T 1082 p 17  1106 p 17  11076 p 14  1108 p 17
3GACG 766

204 47 246 238

----SerSe

32 228 21 168

-- GCGT 267

----A

```
RESULT 13
AAB59817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
           The present invention relates to toluene degrading enzyme genes and proteins tutH (see AAF23629 and AAB59831), tutI (AAF23630 and AAB59832), tutI (AAF23631 and AAB59832), and tutG (AAF23632 and AAB59834). The toluene degrading enzymes are homologues of pyruvate formate lyase. The toluene degrading enzymes are useful for biological treatment of organic compounds and in particular for the degradation of toluene and its analogs contained in liquid or solid waste source. The present sequence analogs contained in liquid or solid waste source.
                                                                                                                                          Disclosure; Fig 5; 122pp; English.
                                                                                                                                                                               Composition comprising toluene degrading enzyme useful for biological treatment of organic compounds, especially for degrading toluene or its
                                                                                                                                                                                                                                                                                         Coschigano PW;
                                                                                                                                                                                                                                                                                                                                                                                24-MAY-2000; 2000WO-US14298
                                                                                                                                                                                                                                                                                                                                                                                                                07-DEC-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Geobacter metallireducens Azoarcus tolulyticus.
                                                                                                                                                                                                                                                                                                                      OIHO AIND (-HOXD)
                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200072650-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thauera aromatica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toluene degradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TutD protein #8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1267 Valarg-SerAlaGlyHisAspArgAlaArgLysArg 1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kanthomonas maltophilia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAB59817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB59817 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1559
                                                                                                                                                                                                                                         I-PSDB; AAF23625, AAF23627.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1502
                                                                                                                                                                                                                                                         2001-041080/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspSerTyrArgAspHisGluThrHisArgCysProHisPheAlaArgGlnAlaAlaArg 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACCCGATATCGTGGGCAAGGAAGTGATGG----GCGCGCGCCTGCGCGCGCGAGCGCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGT 1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaSerAlaSerTrpAlaH1sSerArgPheArgSerSerThrCysSerSerLysAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            {\tt SerProThrTrpProAlaSerSerGlySerProCysGlyAlaSerGlyAlaSerThrPro}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCGCTACATGGCCCCTC------CCTCCGCTC------GCAATACGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgArgCysLysGluArgCysProPheArgCysSerProAlaSerProProThrAla 1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProLeuArgAsnAlaCysProGlyTrpAlaProArgAlaSerArgProHisLeuProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTTACAATCCGGCGTGAACGGGG------
        sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                 9905-0323872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               enzyme; waste degradation;
    for toluene degrading enzyme,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TutD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1186
              밁
                                         Q.
                                                                        맑
                                                                                                δÃ
                                                                                                                                   밁
                                                                                                                                                               Ş
                                                                                                                                                                                                                          Ş
                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-009-782-1 (1-1758) x AAB59817 (1-999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sox
251 aHisArgArgCysThrAlaArgArgGlyArgPheArgGlyProThrSerArgAspThrGl
                                                                        236
                                                                                                      769
                                                                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                   217
                                                                                                                                                                  709
                                                                                                                                                                                                                            649
                                                                                                                                                                                                                                              177 aCysGluArgArgAlaArgCysProGlyProArgSerAlaProSerIleArgArgGlySe
                                                                                                                                                                                                                                                                                         596
                                                                                                                                                                                                                                                                                                                                                     574
                                                                                                                                                                                                                                                                                                                                                                                   137
                                                                                                                                                                                                                                                                                                                                                                                                                532
                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       448 GCGGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              388 GGCGGCTCTTACCGTTTCGACCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169 GACGCCGCCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCCGGCTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78 ysArgAsnCysCysCysArgAlaAlaArgArgPheArgGly-ProLeuArgAlaAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                109 GGGCGGCGCGGCCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5 GlyArgArgLeuAsp-TrpCysThrGlyAlaThrAspArgValThrGlyCys------
                           ----AGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACG--
                                                                                          --CCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCG-
                                                                                                                                                     GGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTG
                                                                                                                                                                                  rArgAspArgSerArgAlaSerArgSerArgSerArgGlySerProLeuCysGlyAlaTh
                                                                                                                                                                                                                 OHisProProValArg-
                                                                                                                        rAla---ThrSerCysProArgArgArgArgCysSerIleGlyAlaSerSerGlyCysPr
                                                                                                                                                                                                                                                                                                           eSerArgSerArgAspSerAlaGlyProArgAlaAlaArgPheArgArgCysArgAspAl
                                                                                                                                                                                                                                                                                                                                                                     gArgCysProProSerSerProAlaGlyAlaProGlyAlaThrCysSerArgArgProPh
                                                                                                                                                                                                                                                                                                                                                                                                          GAGG-----AAATCGCGGCCATGCGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ser-ArgCysSerProAspArgCysCysArgTrpSerArgCysSerSerProSerProAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAACGCTGCGCGCG---CGGTCATGCCGG-----ACTTGCAGCGCGCCGCCACCGAC 531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaCysAlaArgArgPheAlaTyrArgArgLeuGlyProArgCysThrSerArgGlyArg 117
                                                                                                                                                                                                                                                                                                                                                      G----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rgAspProLeuGlyArgGlyCysThrAspProCysCysProProAla---ThrArgArgL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCAGCCTGGCGCCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCCAATTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rAla-AlaAlaProArgArgProProProSerHisIleSerSerAlaAlaTyrGlyAlaS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACTCGCACACCCACGACGACAACTACCTGCTCAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----ProArgAlaProSerGlyAlaSerArg----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     erCysThrAspAlaArgAsn--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 999
                                                                                                                                                                                                                                                                            -CGACCGGCGCCTTCTACCCGCCCCCCCCCCCCCCACCACCGAAGAGATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                             ----CCAGCGGCGCCATCGGCATTT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.06e-15
332.50
34.15%
27.76%
10.08%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GTCAACGCCGCCTGTATGGTG---GGCCAT
```

-----ACCTGGCCGAGGAAGCCATG 573

137

97 447 78 387 59 327 52

-----

595 157

197 648 177

271

```
1084 CCCGACGTGCAGCGCATCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             290 -----TrpGlyArgProLeuTrpAlaSerGlyCysProArgAlaArgTrpArgArgGl 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             925 GTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGG
                   CGCTACATGGCCCCTC-----CCTCCGCTC-
                                           {\tt gArgArgCysLysGluArgCysProPheArgCysSerProAlaSerProProThrAlaSe}
                                                                                                          oLeuArgAsnAlaCysProGlyTrpAlaProArgAlaSerArgProHisLeuProLeuAr
                                                                                                                                                  TTACAATCCGGCGTGAACGGGG-----
                                                                                                                                                                                                                   GTGCTCG-----
                                                                                                                                                                    aCysSerTrpSerSerGlnH1sAspProAlaSerGlnAspProGlnArgGlyThrCysPr 574
                                                                                                                                                                                                                                  sArgArgH1sAsnArgArgArgTyrGlySerArgArg---ProPheArgArgArgPheAl
                                                                                                                                                                                                                                                                  ||||||:::|||
|ProSerSerProLeuAsnArgProPheAlaArgArgSerAlaProAlaSerThrProCy
                                                                                                                                                                                                                                                                                                                               o---TrpSerValProlleArgProSerSerIleCysGlyArgAlaValGlyLeuThrSe 515
                                                                                                                                                                                                                                                                                                                                                                                           ACGGTGGCCGATACCG---CCACCTTCGAAC-----ACCCT 1374
                                                                                                                                                                                                                                                                                                                                                                                                                           aCysGlySerSerArgArgProSer-------SerGlyArgPr 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----GCCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCC 1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gArgSerCysProValArgSerProArgArgGlyThrArgAlaAlaTrpHisSerAl 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oArgThrAlaSerSerArgAlaAlaSerGlyAlaSerAlaLysArgThrArgLeuArgAr 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACTATGCGCGCGACCTGGGCCTGTTCC------CGCTGGAGACGGCGGTA 1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gProHisLysProProLysGlyCysAlaThrAspIleHisSerGlyArgTyrCysTrpPr 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rThrArgArgCysAlaValArgGlySerSerArgHisAspArgThrAlaSerThrArgAr 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCCGCGCCTGTGGGGCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \verb"uHisArgSerLeuArgGlyProTrpAlaAlaProPheArgAlaHisArgSerArgSerTh"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          {\tt galathrCysThrAlaArgCysGlyArgAspGlyCysSerAlaPhePheGlyAsnProLe}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------CTTCCCGCGGG------TGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -TGGCGTTCGGCCCGA----CCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCG 1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rProlleArgTrpThrGlyArgCy8ArgArgTrpArgArgProLeuGlyCy8SerProAr 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACTTCATGATGGACG-----AA 1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ·CysGlyArgArgValArgSerAspThrSerAlaArgArgSerArgCysProAlaSerSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCAGCCGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ySerAsnTrpSerSerGlyArgSerSerAlaAlaSerProLysArgThr-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGACCTGGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAG 1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         yArgArgArgCysTrpArgTrpProArgProArgArgCysArgCysSerArgArg-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -CGTATCCCTACGTGGCCGGCTCCA------CCATGCTCAAGCAGGACCGC
                                                                                                                                                                                            -CGGCGTGCCGCCCCCCCAACCCTGGACGCAAAC 1560
              ---GCAATACGGCCCCA 1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----CCGGCGCCATC 1065
                                                                                                                                          1525
                                                                                                                                                                                                                                     554
                                                                                                                                                                                                       1503
                                                                                                                                                                                                                                                                     1464
                                                                                                                                                                                                                                                                                                   535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          924
US-10-009-782-1 (1-1758) x AAB59826
                                                     Best Local S
Query Match:
                                                                                 Percent Similarity:
                                                                                                       Score:
                                                                                                                                Alignment Scores:
                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
AAB59826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ي</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coschigano
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200072650-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB59826;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614
                                                                  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAF23627
                                                                                                                                                            1615 AA;
```

밁 S 밁 Ş

496

1342

1286

463

483

Ş

1243

유 Ş ğ

443

1198

423

S

1178

밁 Ŕ 밁

403

1159

밁 Ş 밁 Ş 문 ġ 밁 Ş 밁 õ 霹 Ô

1066

343

1045

307

1103

S 밁 Ş 밁 Ş 밁 Š 밁 Ş

1.42e-15 331.50 36.65% 28.12% 10.05%

Length:
Matches:
Conservative:
Mismatches:

1615 178 54 203 198

(1-1615)

Indels: Gaps:

1504

1465

554

1405

```
The present invention relates to toluene degrading enzyme genes and proteins tutH (see AAF23629 and AAB59831), tutI (AAF23630 and AAB59832), tutF (AAF23631 and AAB59832) and tutG (AAF23632 and AAB59834). The toluene degrading enzymes are homologues of pyruvate formate lyase. The toluene degrading enzymes are useful for biological treatment of organic compounds and in particular for the degradation of toluene and its analogs contained in liquid or solid waste source. The present sequence is a protein sequence encoded by toluene degrading enzyme gene, TutD/E.
                                                                                                                                                                                                                                                                 Disclosure; Fig 12; 122pp; English.
                                                                                                                                                                                                                                                                                                                              Composition comprising toluene degrading enzyme useful for biological treatment of organic compounds, especially for degrading toluene or its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-041080/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (UYOH-) UNIV OHIO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Azoarcus tolulyticus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xanthomonas maltophilia,
Geobacter metallireducens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Toluene degradation; enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein #3 encoded by TutD/E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thauera aromatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB59826 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1717 AAGGCCGAGCTGGGCCAGATCGCCCTGAGCTACGA 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           674 larg-SeralaGlyHisAspArgAlaArgLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     {\tt aSerAlaSerTrpAlaHisSerArgPheArgSerSerThrCysSerSerLysAlaArgAs}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : ||||||||||
rProThrTrpProAlaSerSerGlySerProCysGlyAlaSerGlyAlaSerThrProAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pSerTyrargaspHisGluThrHisArgCysProHisPheAlaArgGlnAlaAlaArgVa 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGATATCGTGGGCAAGGAAGTGATGG---GCGCGCGCCCTGCGCGCGAGCGCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-US14298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9905-0323872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein; 1615 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     waste degradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TutE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tutb.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      634
```

-	. 0 .		< & ~	ō 4	. 6	₹ 8	¥ ¥	8	¥ ¥	ž	8 8	8	5 5	3 5	8	Ϋ́	₽ 5	8	γO	В	γo	용 1	§ §	, 5d
778	5 5	53	782 733	N (4	) N	662	. 6	693	681 542	482	673	Ü	362	j G	615	290	602	584	17	56	11	54 (	л V	سر ر
TCACCTGGT	eArgS	ACA8-	CGCACCAC	SerProAr	3 :	ArgProTh	GCGCCTTCTACCC	ldı	сдессате	ACG	ACCTGGAC	ValSerPr	CCGCCCCC	ACGCCAACC	н	0	Sej			9 ThrArgPro	3 GGCGCGC	Alaas	o mccaca	
TGCAAGCCCTTCC	aArgPr	T GAT CGAC	Arg	J		OThrCysArgProSerPro AGCGCGCATGGCGGCATCT	FACCCGCC	ysThrGlyCysTrpArgA	Talihrihralaser -Valihrihralaser		GACGCGTTGCGGGCC   	alSerProIleSerIleArgGlnThrSerAl	CTGGACCT	: <u>=                                    </u>	ý	GCGTCACCA	reseaceceace; ;     cAlaThrThrPro		X		CCIG	nSerLeuLysArgAlaSerArgP	rgArgArg	TCGCGGAAGGAGATTTCCATGTCCCAATCCGATTCCCAGC
TTCCCCG		ANGCUGUCATGGCGCCAGGACGTCTCGCTGGACGCG	GGCCAGC	ACCTTCC		roSerPro	CGCCCGCCCCCCCCCCCCCCAAGAGAGATCATCGAGGTG	rpargale	lasercy	GTCATG	GGGCCACG	leArgGl	rgArgSe GCTGGAC		SProThrTrpProCysArgThrThrCysGlyAlaThrThrArgAr	reereere	CACGACGACAACTACCTGCTCAG           rProLysIleProThrCysSer-	SerThrSerArgProTrpCysSerArgArgThr	GGTCGAC	AlaLysAla	GCGTGCG	TITITI: Argalas:	GlyProS	TTTCCAT
CCCGAACTGAGCG	TCARGCAGGACCGCGTGCTGCTGGCCGGACGCACC.::      :::	rececece	CCAATT-	GCATCGGCC		Gly	GCGCCAC	rgAlaSerSerS	erCysArg	CCGGACTT	CACGCCGGCGGCCGTCA	nThrSer/	rMetAsn: GAAGGCG		oCysArg	ACGGGCA	TACCTGC	rserArg	GTGTCGG	  -AlaLys	CGACC	erArgPro	erAlaArgSerValAlaAlaG	GTCCCAAI
- 66	CGCGTGC	CAGGACG	rgArgSer	cceceaec	1 2		CACCGAA	erProLys		GCAGCGC	ğ — ğ	aAla	ThrGlySe		ThrThrCy	ATTGCGG	TCAGGCG	Protrpc	GCCTGGT		GCATCGC	CCCTCATCGACGGCAGCAACACCCCGGGGC	Servala	CCGATTC
GCGACCTGGATGAA	TGCTGGC	TCTCGCT	GCCGCTC	CGAGCTGGACGTGCCGGTGGTGATCT      Ser	ThrAlaArgArgValSerThr		GAGATCA:	ysserile		GCCGCCA	CAACGCCGCCT	s:: sileArg	SerArgileA		  /sGlyAle	CATCAGC	AGGCGTCGCGACA   	  ysSerArg	SOSOLSS	       roLysPro	Ceccano	CGACGGC    erAlacv	laAlaGl	
G	CGGACGC	GGACGCG     ysThrse	GCGCGAG	GCCGGTG	ArgValse		<b>PCGAGGT</b> (	ATCGGCAT	ProThrL	CCGACGA	1 14	SerAlaA	AlaCysAr		ThrThrA	reececc	ATGACGCC	  rgArgThrA	CCGGCT	Servalalaaro		AGCAACA      Alatle!	yAsnThr	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
CGCGGCCG	ACCATCA :   ::: rProThr	CGTATCCCT     SerArgPro	ACGC     yArgAla	GTGATCT	CACATCG		12	TTTCGACCG:::		GAAATC	CCAT	: A	rgAlaSer		Sp	3 9	ac v	snSerse	i i		THE ATOLES		HisLeuPro	20
1009 784	949 777	889 764	832 752	781 732	721		on .	601 · 711	69	G 541	٠ ـــ ١	T 421		- 361		, س	T 289	6	G 229	າ ຄ	, 0	5 11	G	CT 58
									•															

		•					•												-			•	•											
×	S X S	XX YW	XX DE	X G	žč.	RESULT ABG0353 ID AE	₽	Ϋ́O	В	Q	뤗	Qy	ర్జ	δĀ	B	Qy	皮	δ	₽	Qy	. <b>D</b>	δÃ	B	Qy	당	δ	₽.	Qy	₽.	Qγ		Ϋ́	밁	Q
mozout/300/-AZ.	lomo sa	Human; chromosome mapping; gene mapping; gene therapy; forensic; food supplement; medical imaging; diagnostic; genetic disorder.	Novel human diagnostic protein #3521.	13-FEB-2002 (first entry)	ABG03530;	LT 15 530 ABG03530 standard; Protein; 599 AA.	1018 AlaArgArgProVallleSerArgArgSerPro 1028	cc 1711	1001		rSerArgProSerCysTrp	<b>-</b>	965ThrThrGlySerThrCysCysAlaCysArgProAlaSerThrValAlaAlaArgArgL 984	3 19 19	964	-3 (	hrThrArgSerAlaArgSer 945		erAlaIleProArgArgThrAlaArgArgArgCvsAlaGlvPhaSar 025	TGTACG	886 ThrProAlaThrThrProThrProSerSerArgGlnProSerGlySerAlaArgProSer 905	575	870 ThrileCysSerSerFerSerPlaAlaProThr	1 6	lvaro A69	GCGCTTCGGCCTGGCCGGGCGGCAGCTGCAGG	851				8 81 <b>7</b>	ACCATGATCGGCT	800	1010 AGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCG

```
Ş
                                 밁
                                                    Ş
                                                                         밁
                                                                                            S
                                                                                                                   몆
                                                                                                                                                                                            US-10-009-782-1 (1-1758) x ABG03530 (1-599)
                                                                                                                                                                                                                                                                                                                         ₹8888888888888888888888888888888888
                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                     Alignment Scores:
  218 CCGGCTTCATCGACTCGCACACCC
                                                                                                                                                                                                                                                                                                           Sequence
                                                    185
                                                                                        164 TGTCGGACGCCG-----
                                                                                                                 110 -----GGCGCGCGCGCGACCTGGGCGTGCGGCGGCGACCGCCATCGCCGATCGGCGATC 163
                  79 ProAlaSerAla-----AlaTrpGlyAlaGluGlnGluProValArgSerTrpGlyPro 96
                                                                                                                                                                                                                                                                             8
0
::
                                                                        59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 20; SEQ ID No 33889; 103pp; English.
                                                                                                    41 AlaAlaGly***ArgArgMetTrp-----CysAlaSerAlaSerLeuAla***SerPro 58
                                                                                                                                              21 SerProAlaProGlyCysArgArgAlaAlaProArgTrpSerSerProGlyProArgThr 40
                                                                                                                                                         53 AGCCCTTCGACCTGCTGGCGGGGGGGGGGCACCCTCATCGACGGCAGCAGCAACACCCCGG--- 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New isolated polynucleotide and encoded polypeptides, useful in diagnostics; forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-639362/73.
N-PSDB; AAS67717.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drmanac RT, Liu C, . Tang YT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-2000; 2000US-0540217.
23-AUG-2000; 2000US-0649167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-MAR-2001; 2001WO-US08631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-OCT-2001
                                            CCCGGGTCGACGTGTCGGGCCTGG-----
                                                            CysArgProProArgSerArgTrpTrpArgAspAlaGlySerGlyTrpThrProHisCys 78
                                                                                                                                                                                                                                                                                                          599
                                                                                                                                                                                                                                                                                                        AA,
                                                                                                                                                                                                                   5.74e-15
321.50
34.57%
29.08%
9.75%
                                                                                                                                                                                                                           Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                Gaps:
                                                                                 -----CCGCGCACA 184
                                         ---TGGTCGCGC 217
----- 241
```

10 All 10		147 419	127	242 117
4 ullecysalaHisproGlyalalysSer 6 AAATCGCGGCCATGCGGCACCGCC				
**************************************	ProProGlnGlyArgCysGlyProThrThrAlaProGlySerThrGlyProAlaGlyArg GCCATTCAACGCCGCGCGCCATGCC	CGCCCGCCCCCTGGACCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCG 	TCACCACGTGGTCACGGGCAATTGCGGCATCAG	ACGACGACAACTACCTGCTCAGGCGTCGCGAC.::    
ArgAlaHisLeuProGly***TrpProGlnLysIGGACTTGCAGCGGCCGCCACCGACGACGACGACGACGACGACGACG	le le le le le le le le le le le le le l	CGGCTCTTACCGTTTC	CAGCCTGGCGCCCGCTGGCGCACGCCAAC	· a ·
Progly***TrpProglnLysLe 194 CCAGCGCGCCCCACCGACGAGG 535	YProAlaGlyArg 175		*ProArgCysProCys 1	ATGACGCCCAAGATCTCGCAGGGCG 298

Sear	及	Qγ	D <sub>D</sub>	Ş	B	δĀ	皮	γQ	Дb	Qy	ઠ	νQ	g	Qy	밁	γ	문	οy	밁	δō	ğ	δ
ch com	585	1704	576	1644	561	1584	542	1536	529	1479	517	1419	502	1359	485	1323	465	1275	445	1224	425	1176
Search completed: May 11, 2003, 12:09:19	GlyGlyAlaAsnGlySerProGlyProProArg 595	CTCGACCCTGTCCAAGGCGAGCTGGGCCAGATCGC 1739	Arg	CGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCTCTCCAGGCCAGGCGGATGGGGG		TCGCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGC	TrpAsnProAlaProProForoSerProProProProAlaLeuGlyLeuProLeuArg 560				AlaGlySerAlaArgLeuSerGlyAlaAlaSerGln 528			200	SerAlaLysAlaLysArgAsnSerSerTyrArgGluProGlyMetGlyGly 501	GETGGTGTT	CysPheGlyGlyIleAlaGlnArgGlyArgAlaAlaArgHisCysLeuLeuSerArgPro 484		ProCysHisLeuProGlyIleProAlaArgGlnProLeuGlyLeuProArgArgThrArg 464		ArgArgSerAlaAlaHisGlyHisGlyAlaArgAlaGlySerProGlnProGlyAlaPro 444	

earch completed: May 11, 2003, 12:09:

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic .- nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                             Score
       83
82.8
82
78.4
76
74
                                                                                                             Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           May 11, 2003, 01:22:49; Search time 28310 Seconds (without alignments) 1005.711 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16154066 seqs, 8097743376 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-009-782-1
1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_estnu:*
em_estov:*
em_estpl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_estba:*
em_esthum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_est1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_estro:*
                                                                                                                                                                                                                                               em_gss_pro:*
em_gss_rod:*
                                                                                                                                                                                                                                                                            em_gss_mus:*
em_gss_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_estin:
                                                                                                               Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                     em_estom: *
                                                                                                                                                                                                                                                                                                                                                                                                        #:ssp_dt
                                                                                                                                                                                                                                                                                                                                                                                                                                                 jb_est5:
 BG809984
AG171124
AG171124
AG032943
AG030608
BG810038
                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               32308132
           BG809984 mgct003xd
AG171124 Pan trogl
AG171124 Pan trogl
AG032943 Pan trogl
AG030608 Pan trogl
                                                                                                          Description
   BG810038
mgct002x
```

					O		O	ი		O	·		O	ი	•	ი									o		ဂ		ი			ი			ი	O	ი		
	ů	4 0	4	4.2	41	40	39	8	37	36	i Li	34	ω ω	32	3	30	29	28	27	26	25	24	23	22	21	20.	19	18	17	16	15	14	13	12	1	10	9	œ	7
	Ú	00.00	i	66.2								67.4																70.2	_	71	71	~	۲	۳	۲	71.8	ښو	72.4	
	.4.			ω															•	3.9	•	•	•		•	ω											4.1	4.1	4.1
•	1452	1339	1164	1101	1086	1366	1040	1248	644	1651	1278	1189	803	1299	1088	1328	1232	936	1387	1626	982	932	1364	935	1160	1360	1625	1131	9 5 6	1288	1281	1129	1538	1152	925	1341	932	1299	925
				17																																			
	- AG032979	BM458211	AG128373	AG039543	AG077581	AG065058	BG786331	AG049208	BG607300 ·	BG809816	AG060116	AG030608	AG162326	AG039481	AG075424	AG043615	AG072425	BG852371	AW731151 ·	AW731212	BQ687717	CNS00720	BM810045	CNS006XK	BM926731	BM463178	AG043477	AG042920	SASOUSAS TANGOS	BO679719	BG852363	AG127788	AG030607	AG076818	ള	6	8	AG039481	CNS0091P
	AG032979	BM458211	AG128373	AG039543	AG077581	AG065058	BG786331	AG049208	BG607300	BG809816	AG060116	AG030608	AC163336	AG039481	AG075424	AG04 760	AG073435	BGR52371	AW731151	AW731212	B0687717	AL06674	BM81004	AI.066051	BM926731	BM463170	2004232	AC00001	51/8/178	5000000	DC95236	AG1 27781	AG03060	AG07681	AT.05301	AC030611	₹ 5	3 9	AT.05301
	Par	g	Par	Pan trogl	Pan trogl	Pan trool	SEATINGOOS	Pan troal	WHE2493 G	mact 001 xk	Pan trogl	Pan trogi	Dan +1091	Dan trogs	Dan trogs	Dan trogi	DB + 1000	36	GA RADOL	GA EBOOL	ACENCOURT.	Drogophil		Drogonhil		Faci		Trogogott	AGENCOURT	TOZGOSGAO	200	Terr crost	9 5	0 5	7		7	0 5	

## ALIGNMENTS

•								•															
•	FEATURES source				,		COMMENT	JOURNAL		TITLE	AUTHORS	REFERENCE			ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	201 111111011	LOCUS	BG809984	RESULT 1
/organism="Magnaporthe grisea" /strain="70-15"	<pre>seq primer: rs primer (AATTAACCCTCACTAAAGGG). Location/Qualifiers 11516</pre>	Email: ralph_dean@ncsu.edu	Fax: 919-513-0024	Tel: 919-513-0020	North Carolina State University	Fungal Genomics Laboratory	Contact: Ralph A. Dean	Unpublished (2001)	library in the rice blast fungus, Magnaporthe grises	Construction and sequence analysis of an appressorium stage chan	Chol, W. and Dean, R.A.	1 (bases 1 to 1516)	Sordariomycetes incertae sedis; Magnaporthaceae: Magnaporthaceae;	Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycotos;	Magnaporthe grisea	Magnaporthe grisea.		BG809984.1 GI:14180964	BG809984	TIES ONLY THE THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF T	BG809984 . 1516 bp mRNA linear EST 22-MAY-2001		

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 530
             929
                                                                                                               813
                                                                                                                                       768
                                                                                                                                                                 753
                                                                                                                                                                                                                   693
                                                                                                                                                                                                                                           648
                                                                                                                                                                                                                                                                    634
                                                                                                                                                                                                                                                                                            588
                                                                                                                                                                                         708
                                                                                                                                                                                                                                                                                                                     574
                                                                                                                                                                                                                                                                                                                                             528
                                                                                                                                                                                                                                                                                                                                                                      514
                                                                                                                                                                                                                                                                                                                                                                                                468
                                                                                                                                                                                                                                                                                                                                                                                                                        454
                                                                                                                                                                                                                                                                                                                                                                                                                                                408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108 GGGGCGGCGGCGGACCTGGGGGTGCGCGACCGCATCGCCGATCGGCGATCTGTC 167
                     CTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCAT 947
GACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCC 887
                                                                                                GCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGA 827
                                                                                                                                                     CGAGGTGTGCCGGCCGGAGGGGGATGGCGGCATCTACGCCACCACCACGCGACGA 707
                                                                                                                                                                                                    GCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGTCAACGCCGCCTG 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGAGGAAATCGCGGGCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGCGCCAT
                                                                                                                                                                                                                                                                                                                                                         TATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                           GCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGA 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGGCGNNNCACCCNNNGNCCCNCCCGCGGGGGGGCCCGCNCCGGGGGCCGGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGACGCCGCCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCAT 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Vector: pBlueScript SK(+) Vector; Site_1: EcoRI; Site_2: XhoI; The appressorium formation-specific cDNA library was constructed from conidia germinated for 5-8 hr on an inductive surface. The library contains over 55,000 clones with average insert size of 1.5 kbp."

a 657 c 660 g 16 t 118 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:148305"
/Clone="mgct002xd11f"
/clone=lib="Magnaporthe grisea Appressorium Stage cDNA"
/dev_stage="Germinated conidia on appressorium-inductive
surface"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 83; DB 12;
Pred. No. 0.00033;
0; Mismatches 765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  765; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                   872
                                                                                                                                                     812
                                                                                                                                                                                                                                                        692
                                                                                                                                                                                                                                                                                647
                                                                                                                                                                                                                                                                                                          633
                                                                                                                                                                                                                                                                                                                                                            573
                                                                                                                                                                                                                                                                                                                                                                                                            513
                                                                                                                                                                                                                                                                                                                                                                                                                                                            453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ψ
```

Ş

밁 Ş

Ş B 밁 S

S 밁 å 밁

밁 Š 밁 Ş 밁 Ş B Ş 밁

FEATURES

R.Site 1 R.Site 2

Cocation/Qualifiers

/organism="Pan troglodytes" /db\_xref="taxon:9598"

```
COMMENT
                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 2
AG171124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        989 CGCCGCGCCGCGCGCGCGCGCCCCCGCGCGCGAGCCGCNCCGGACGCCCGCGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             948 CATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGCGCGACCTGGATGAAGTCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACG 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAA 1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGG 1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fujiyama, A., Hattori, M., Toyoda, A., Taylor, T.D., Yada, T., Totoki, Y., Watanabe, H. and Sakaki, Y.

Potoki, Y., Watanabe, H. and Sakaki, Y.

Direct Submission

Submitted (02-NGC-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC);

17-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbesgsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)

Clones are derived from the chimpanzee BAC library RPCI-43 This BAC end was generated during the R&D process and may have higher chance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCGACGGCCTGCCGCACGACGACGACCCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCG 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GNGCCCGCCGCGCGCNCGCNGCCGCGCGCGCCCNCGNGCCGCGCGCGCGCGNNNCNCNCGC 1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCGCGCGCGGCCGCCCGGCGCGCGCGCGCGNGNNGGCGCGCGCCCCGCGNGCGCGG 1108
                                                                                           of clone tracking errors.
                                                                                                                                                                                                                                                                                                 Fujiyama, A., Hattori, M., Toyoda, A., Totoki, Y., Watanabe, H. and Sakaki, Y. BAC end sequences of Library RPCI-43
                                                                                                                                                                                                                                                                                                                                                                                     Pan troglodytes
Eukaryota; Meta:
                                                      LIBRARY
                                                                                 PRIMERS
                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                             Pan troglodytes male lymphocytes DNA, clone_lib:RPCI-43 Chimpanzee
Male BAC Library clone:RP43-040F09.TJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AG171124.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pan troglodytes DNA, clone:
                                   Vector
                                                                Sequencing: TJ
                                                                                                                                                                                                                                                                           1 to 1798)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:16700802
: pBACe3.6
: ECORI
: ECORI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1798 bp DNA linear
one: RP43-040F09.TJ, genomic
                                                                                                                                                                                                                                                                                                                                 Taylor, T.D.,
                                                                                                                                                                                                                                                                                                                                                               Hominidae;
                                                                                                                                                                                                                                                                                                                                 Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SS
                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1048
```

9;

```
Š
                                 밁
                                                 Š
                                                                                                                           õ
                                                                                                                                                밁
                                                                                                                                                                                   밁
                                                                                                                                                                                                     S
                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                       Q.
                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                           .당
                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match

Best Local Similarity

Matches 645; Conserv
                947
                                  966
                                                   887
                                                                      906
                                                                                                           846
                                                                                                                                                                                                      647
                                                                                                                                                                                                                                           587
                                                                                                                                                                                                                                                                                527
                                                                                                                                                                                                                                                                                                   552
                                                                                                                                                                                                                                                                                                             467 GTATGGTGGGCCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                       492
                                                                                                                                                                                                                                                                                                                                                         407
                                                                                                                                                                                                                                                                                                                                                                            434
                                                                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                   291
                                                                                                                                                                                                                                                                                                                                                                                                                                                    314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51
TCATCACCTGGTGCAAGCCCTTCCCCGAAC-----TGAGCGGGCGCGCACCTGGATG
                                                                TGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCGCTCGCGCG
                                                                                                                                                     TCGAGGTGTGCCGCCGCTGAGCGCGCATGGCGGCATCTACGCCACACACGCGACATGCGCACA
                                                                                                                                                                                                                                                                   CCGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCATGCGGCGCCA
                          cececececececececececece - - - - e Necececececececececececececece
                                                                                                                                                                                                                                                                                            AGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCT
                                                                                  AGACGCTGCCGCTGATCGAGGCCCATGGCGCCAGGACGTCTCGCTGGACGCGTATC
                                                                                                                                                                                                                                                                                                                               CGCACGCCAACCCGCCGCCCCCCTGGACCTGGCTGGACGAAGGCGGCTCTTACCGTTTCG
                                                                                                                                                                                                                                                                                                                                                                    GCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATC----AGCCTGGCGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGCCGCACACCCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCCCCGGCCTTCATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGCGCGACCTGGGCGTGCGCGGCGATCGCCGCCATCGGCGATCTGTCGGA 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCAGCAACACCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.7%;
ilarity 38.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="RP43-040F09.TJ"
/sex="male"
/sex="male"
/cell_type="lymphocytes"
/celne_lib="RPCI-43 Chimpanzee Male BAC Library"
/clone_lib="RPCI-43 Chimpanzee Male BAC Library"
/clone_lib="RPCI-43 Chimpanzee Male BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 82.8; DB 17;
Pred. No. 0.00037;
0; Mismatches 997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
         997
                                             946
                                                                965
                                                                                   886
                                                                                                     905
                                                                                                                       826
                                                                                                                                         845
                                                                                                                                                            766
                                                                                                                                                                             787
                                                                                                                                                                                                706
                                                                                                                                                                                                                   727
                                                                                                                                                                                                                                     646
                                                                                                                                                                                                                                                                         586
                                                                                                                                                                                                                                                                                            611
                                                                                                                                                                                                                                                                                                              526
                                                                                                                                                                                                                                                                                                                                                   466
                                                                                                                                                                                                                                                        667
                                                                                                                                                                                                                                                                                                                                 551
                                                                                                                                                                                                                                                                                                                                                                     491
                                                                                                                                                                                                                                                                                                                                                                                        406
                                                                                                                                                                                                                                                                                                                                                                                                         433
                                                                                                                                                                                                                                                                                                                                                                                                                           346
                                                                                                                                                                                                                                                                                                                                                                                                                                              373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                290
```

```
TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                               RESULT 3
AG171124/c
                                                                REFERENCE
                                                                                                                        SOURCE
                                                                                                                                                                             DEFINITION
                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                      AUTHORS
                                                                                                 ORGANISM
                                                                                                                                                                                                                                               1746
                                                                                                                                                                                                                                                                     1649
                                                                                                                                                                                                                                                                                           1686
                                                                                                                                                                                                                                                                                                                 1589
                                                                                                                                                                                                                                                                                                                                      1626
                                                                                                                                                                                                                                                                                                                                                           1532
                                                                                                                                                                                                                                                                                                                                                                                 1566
                                                                                                                                                                                                                                                                                                                                                                                                      1473
                                                                                                                                                                                                                                                                                                                                                                                                                            1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1386 GENCECCECNCCGGCGCGCGCGCGCCCCCGCGCGCGCCGCCGCGCGCGCCGCCGCCGC 1445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1026
                                                                                                                                                                                                                                        GCGCGNCGCGGCGCCCGCCCGCCCGCGCGCGCGCCCCGGCCNCNCGC
                                                                                                                                                                                                                                                      GCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGC
                                                                                                                                                                                                                                                                                  ACGCACG-GCCGCCTGAGCCCGGCGCCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGT.1531
                                                                                                                                                                                                                                                                                                                                                                                                                     CGCNNCNCNNCCGCNCCGCGCCCNNCGCGNCCGCGCCCCNNCNCNCCCGCGCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                          TACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAA 1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCTGCAGGCCGGGTACTTCGCCGACCTGGTGTGTTCGACCGGGCCACGGT--GGCCGA 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGGC 1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGCGAGACCTGGGGCCTGTTCCCGCTGGAGA 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCG---CCTGTGGG 1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGA 1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence.
AG171124
                    BAC end sequences 
Unpublished
                                                   Fujiyama, A.,
                                                                                          Pan troglodytes male lymphocytes DNA, clone_lib:RPCI-43 Chimpanzee Male BAC Library clone:RP43-040F09.TJ.
Pan troglodytes
                                                                                                                                                                        AG171124 1798 bp DNA. Pan troglodytes DNA, clone: RP43-040F09.TJ,
                                                                         Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                            AG171124.1
                         .., Hattori,M., Toyóda,A., Taylor,T.D.,
Watanabe,H. and Sakaki,Y.
quences of Library RPCI-43
                                                                                                                                          GI:16700802
                                                                     Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Pan.
                                                                                                                                                                       linear
, genomic
                                                 Yada,T.
                                                                                                                                                                                                                                         1797
                                                                                                                                                                                                                                                              1700
                                                                                                                                                                       GSS 09
Survey
                                                                                                                                                                                   09-JAN-2002
                                                                                                                                                                                                                                                                                                                                1685
                                                                                                                                                                                                                                                                                                          1648
                                                                                                                                                                                                                                                                                                                                                                                                                      1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1085
```

2 (bases 1 to 1798)
Fujiyama, A., Hattori, M.,
Totoki, Y., Watanabe, H. ar
Direct Submission

and Sakaki, Y.

Yada, T.

```
Š
                                                                                                       밁
         밁
                                                       8
                                                                           .₽
                                                                                                                            Ş
                                                                                                                                                      문
                                                                                                                                                                             Ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                       1023
                                                                                                                                                       1083
                                                                                                                                                                                                                                                                                                      1263
                                                                                                                                                                                                                                                       1203
                                                                                                                                                                                                                                                                                                                                                                                                       1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1503
                                                                                                                                                                              527
         904
                                                                                                                                                                                                                              467
                                                                                                                                                                                                                                                                              407
                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107
CGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGA
                                                                       CATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCGCCACCACCGAAGAGAT
                                                                                                                                              CCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGG--CGC
                                              GTATGGTGGGCCATTCAACGCTGCGCGCCGCCGTCATGCCGGACTTGCAGCGCGCCGCCA 526
                                                                                                                                                                                                                                             AGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCT
                                                                                                                                                                                                                                                                                            CGCACGCCAACCCGGCCGCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCG
                                                                                                                                                                                                                                                                                                                                              TCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                              TOGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGGGCGGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATCTGT 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   al Similarity
517; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (02-AUG-2001) Asso Fujlyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clones are derived from the chimpanzee BAC library RPCI-43 This BAC end was generated during the R&D process and may have higher chance of clone tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (02-AUG-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R.Site 1 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequencing: IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cell_type-"lymphocytes"
/clone_lib="RPCI-43 Chimpanzee Male BAC Library"
778 c 655 g 0 t 365 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="RP43-040F09.TJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /sex-"male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.7%;
38.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : pbACe3.6
: EcoRI
: EcoRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 82; DB:
Pred: No. 0.000
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                806;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
845
                                               905
                                                                                                                                              102
                                                                                                                                                                       584
                                                                                                                                                                                               1084
                                                                                                                       644
                                                                                                                                                                                                                                                                      466
                                                                                                                                                                                                                                                                                                                      406
                                                                                                                                                                                                                                                                                                                                                                     346
                                                                                                                                                                                                                                                                                                                                                                                              1324
                                                                                                                                                                                                                                                                                                                                                                                                                                            1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
```

```
TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                         DEFINITION
ACCESSION
                                                                                                                                                                                                                                                          RESULT 4
AG032943
                                                                                                                                   REFERENCE
                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                               TITLE
JOURNAL
                                                                                                                      AUTHORS
                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                             1425
                                                                                                                                                                                                                                                                                                                                                                          1365
                                                                                                                                                                                                                                                                                                                                                                                                                     1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1005
                                                                                                                                                                                                                                                                                                        191
                                                                                                                                                                                                                                                                                                                                                   251
                                                                                                                                                                                                                                                                                                                                                                                                311
                                                                                                                                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                765
                                                                                                                                                                                                                                                                                                      GCGGCCGGNNNNG
                                                                                                                                                                                                                                                                                                                          CTGGCAAGAGCAG 1437
                                                                                                                                                                                                                                                                                                                                                                  CGAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGT 142
                                                                                                                                                                                                                                                                                                                                              CGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTT 1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAGATGACCGGCCTGACCGCGCGCGCGCTTCGGCCTGGCCGGGCGGCGGCAGCTGCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGCGGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTACTTCATGATGGACGAACCCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGAT 1124
                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCTCCGACGGCCTGCCGCACGACGACGACGCCCATCCGCGCCTGTGGGGCACCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GNCGCGCGCGCGNGCGCGCGCGCCNNNGCGCCGCGGCGCGCGCGCGCGNGNGCGGGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTA 884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCCAAGCCCAATTTCGGCCGCTCGCG
Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
                                Totoki,Y., watanabe,H. and Sakaki,Y. Submiffed 'An ...
                                                                                              BAC end sequences of Library PTB
                                                                                                                                                               Pan troglodytes male lymphoblast DNA, BAC Library clone:PTB-007N10.F. Pan troglodytes
                                                                                                                                                                                                            AG032943 1542 bp DNA Pan troglodytes DNA, clone: PTB-007N10.F, AG032943 GI:16559816
                                                                                                                    Fujiyama, A.,
                                                                                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                          oki,Y., Watanabe,H. a
                                                                       (bases 1 to 1542)
                                                                                                                                       Chordata; Craniata; Vertebrata; Primates; Catarrhini; Hominidae
                                                                                                        and Sakaki, Y
                                                          Taylor, T.
                                                                                                                 Taylor, T.D.,
                                                                                                                                                                                   clone_lib:PTB Chimpanzee Male
                                                                                                                                                                                                                              linear GSS (
                                                                                                                                       Hominidae;
                                                           .
;
                                                           Yada,
                                                                                                                Yada, T.,
                                                                                                                                                  Euteleostomi;
                                                                                                                                                                                                                                         GSS 01-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1004
                                                                                                                                                                                                                                                                                                                                                                                          252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    785
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
  밁
                                                밁
                                                                     ð
                                                                                              밁
                                                                                                                  õ
                                                                                                                                            밁
                                                                                                                                                                  Ş
                                                                                                                                                                                         밁
                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
 1181
                                                                                                                                             1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                            728 CGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACC 787
                                                                     668 GCGCGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCG
                                                                                                                                                                   548
                                                                                                                                                                                           941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136 GGCGACCGCATCGCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             521
                                                                                                                                                                                                                                      432 GTTGCGGGCCACGCCGGCCGGCCTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCG
                                                                                                                                                                                                                                                                                                           3/72 GGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGC
                                                                                                                                                                                                                                                                                                                                                           252 CTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                               196 GTGTCGGGCCTGGTGGTCGCGCC----CGGCTTCATCGACTCGCACACCCCACGACGACAA
                                                                                                                                                                                                                492 CGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACGAGGAAATCGC----GGCCA
                                                                                                                                                                                                                                                                                                                                   76 GGCGGCACCCTCATCGACGGCAGCAACACCCCGGGGCGGCGCGCCGACCTGGGCGTGCGC 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
les 329; Conserv
TGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee BAC library PTB This BAC end was generated during the R&D process and may have higher chance of clone tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vector
R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequencing: -21M13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male
657 c 614 g 19 t :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="PTB-007N10.F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PKS145
SacI
SacI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 78.4; DB 1
Pred. No. 0.0019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                            1120
                                                                                                                                                                  607
                                                                                                                                                                                                                547
                                                                                                                                                                                                                                                              491
                                                                                                                                                                                                                                                                                                                                   820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            580
                                                                                                                                            1060
                                                                                                                                                                                         1000
                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                                                                                                                                                                                                                                                                                                                                                                                                                      251
 1240
                                                1180
                                                                                                                    667
                                                                                                                                                                                                                                      940
                                                                                                                                                                                                                                                                                     880
                                                                                                                                                                                                                                                                                                             431
                                                                                                                                                                                                                                                                                                                                                                                 760
                                                                                                                                                                                                                                                                                                                                                                                                                               700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
```

```
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 5
AG030608/c
                             밁
                                                         Ş
                                                                                      밁
                                                                                                                  Ş
                                                                                                                                                밁
                                                                                                                                                                            Š
                                                                                                                                                                                                           윰
                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rocas
                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                1009
                                                                                        1069
                                                                                                                                                 1129
                                                                                                                                                                                                            1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1241 CCGCGGCCACGNGNGCGCGC 1260
                                                                                                                                                                                545
                                                                                                                                                                                                                                        485
                                                                                                                     605
   725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   788
CCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGC
                                                                                                                                                                             CCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCG
                                                                                                                                                                                                           CGCTGCGCGCCGCGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAGGAAATCGCGG
                                                TGAGCGCGCATGGCGCCACCCACATGCGCGAAGGCGAAGGCGACATCGTGG
                                                                                      ACAAGGTCATGGGCCAGCCC
                             463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (02-AUG-2001) Asso Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC);
1-7-22 Suchiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/,
Tel:81-45-503-911, Fax:81-45-503-9170)
Tel:81-45-503-911, Fax:81-45-503-9170
Clones are derived from the chimpanzee BAC library PTB This BAC encass generated during the R&D process and may have higher chance of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Totoki,Y., Watanabe,H. and Sakaki,Y. BAC end sequences of Library PTB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fujiyama, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AG030608.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pan troglodytes DNA, clone: AG030608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Totoki, Y..., paccori, M., Toyoda, A., Taylor, T.D., Yada, T., Sirect Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AG030608
                                                                                                                                                                                                                                                                    Similarity 41.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Inpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequencing: M13Rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   troglodytes male lymphoblast DNA, Library clone:PTB-003A18.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                             17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vector
                                                                                                                                                                                                                                                                                                                                   /sex="male"
/cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male BAC Library"
/6 488 c 540 g 24 t 120 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="PTB-003A18.R"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:16557481
                                                                                                                                                                                                                                                                                                                                                                                                                                                   .1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hattor1, M., Toyoda, A.,
                                                                                                                                                                                                                                                                                  41.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : pKS145
: SacI
: SacI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   807
                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                 Score 76; DB 17;
Pred. No. 0.0045;
0; Mismatches 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9 bp DNA
PTB-003A18.R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Taylor, T.D.,
                                                                                                                                                                                                                                                                    625; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone_lib:PTB Chimpanzee Male
                                                                                                                                                                                                                                                                                                Length 1189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genom1c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS 01-NOV-2001
survey sequence.
                                                                                                                                                                                                                                                                    30;
                                                                                                                                                                                                                                                                    Gaps
                                                                                      1010
                                                                                                                     664
                                                                                                                                                 1070
                                                                                                                                                                                                                                      544
                             950
                                                                                                                                                                               604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end
                                                                                                                                                                                                                                                                    w
```

```
RESULT 6
BG810038/c
LOCUS
                                                              VERSION
     REFERENCE
                                 ORGANISM
                                                    KEYWORDS
                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ᄝ
                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . 말
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                          1445
                                                                                                                                                                                           1505 TACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCCCCCAACCCTTGGACGCAAACCGCT 156
                                                                                                                                                                                                                                                                               1385
                                                                                                                                                                                                                                                                                                                    1325
                                                                                                                                                                                                                                                                                                                                                        1265
                                                                                                                                                139
                                                                                                                                                                                   199
                                                                                                                                                                                                                                                             319
                                                                                                                                                                                                                                                                                                                                                                                                                               1145
                                                                                                                                                                                                                        259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1085
                                                                                                                                                                                                                                                                                                  379
                                                                                                                                                                                                                                                                                                                                                                                           1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1025
                                                                                                                                                                                                                                                                                                                                      439
                                                                                                                                                                                                                                                                                                                                                                          499
                                                                                                                                                                                                                                                                                                                                                                                                             551
                                                                                                                                                                                                                                                                                                                                                                                                                                                  611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           949
                                                                                                                                        NNGGGGAGACNNCCNCNNNCCCCNNNNCCCCNNNCNCCC
                                                                                                                                                         ACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCC 1602
                                                                                                                                                                         CCGGCCAGCATGCCGGCGCGCGTGCTCGCACGCACGCCCTGAGCCCCGGCGCCCAGCCCT 1504
                                                                                                                                                                                                                                                   CCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAGGCGTTCA
                                                                                                                                                                                                                                                                                       NCNCGCGGGGCGCGGGGCCCNNCNCCCCCCCNCCCCCCCNCAAACAACGAGCGAA 320
                                                                                                                                                                                                                                                                                                           TGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCCTACCGAGCGCG
                                                                                                                                                                                                                                                                                                                            CCGCGCGTTCGGCCTGGCCGGGCGGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGG
                                                                                                                                                                                                                                                                                                                                                                 CGCGCGACCTGGGCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                    CCGACGTGCAGCGCATCCTGGGGTTCGGCCCGACCATGATCGGCTCCGACGGACCGGCTGCCGC 1144
                                                                                                                                                                                                                                                                                                                                                                                                                     ACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGTGCTGGGGGCACTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                         Magnaporthe grisea.
Magnaporthe grisea
Eukaryota; Fungi; Ascomycota;
Sordariomycetes incertae sedis
1 (bases 1 to 1116)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCCCGCGCCGGCCGCGCGCGCGCGCGCGCCNC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTACGACGTGGTGCCCGAGCTGCAGCCGGCGCGCGCCATCTACTTCATGATGGACGAAC 1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTCCCCGAACTGAGCGGGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCA 1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGCCGCCATGGCGGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG810038 1116 bp
mgct002xi01f Magnaporthe grisea
grisea cDNA clone mgct002xi01f :
BG810038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCACAAGGTCATGGGCCCAGCCCAATTTCGGCCGCTGGCGCGAGACGCTGCCGCTGATCG
                                                        BG810038:1 GI:14181018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sedis; Magnaporthaceae; Magnaporthe
            Pezizomycotina; Sordariomycetes;
                                                                       p mRNA linear
a Appressorium Stage
5', mRNA sequence.
                                                                                                                                         102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------GGCGCGNGC
                                                                              EST 22-MAY-2001
CDNA Magnaporthe
                                                                                                                                                                          140
                                                                                                                                                                                                                                                                       1444
                                                                                                                                                                                                                                                                                                                                              1324
                                                                                                                                                                                                               200
                                                                                                                                                                                                                                                    260
                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                   1264
                                                                                                                                                                                                                                                                                                                                                                                                                      1204
                                                                                                                                                                                                                                                                                                                                                                 440
                                                                                                                                                                                                                                                                                                                                                                                                    500
                                                                                                                                                                                                                                                                                                                                                                                                                                          552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   890
   밁
                   Š
                                       밁
                                                       Ş
                                                                            밁
                                                                                           Š
                                                                                                                밁
                                                                                                                                 Š
                                                                                                                                                     밁
                                                                                                                                                                     Ş
                                                                                                                                                                                         8
                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                        Ş.
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                  1103
  487
                                                                                                                                                                      1043
                                                                            607
                                                                                                                                                                                                                                                                                                                                           1027
                                                                                                                667
                                                                                                                                                     727
                                                                                                                                                                                        787
                                                                                                                                                                                                                              847
                                                                                                                                                                                                                                               923
                                                                                                                                                                                                                                                                   907
                                                                                                                                                                                                                                                                                     863
                                                                                                                                                                                                                                                                                                        .967
                                                                                                                                                                                                                                                                                                                         803
                                                                                                                                                                                                                                                                                                                                                             743
```

밁 Ş 밁 Ó 밁 S

428

밁 Ş 문 Ş 믕 Ş

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                      source
CGGCGCCCGGCCCCNNCGGCCCGGCNCCCCGCCCCGCGCGCGCGCGCGCGCGCGCGCG
                      GCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCCGACCTGGTGGTGTTCGACC 1336
                                                         CGCGCCTGTGGGGCACCTTCCCGCGGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGT
                                                                                                                                                                                TGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATC
                                                                                                                                                                                                                                           AGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCC
                                                                                                                                                                                                                                                                                                      GGCGCGACCTGGATGAAGTCGCGGCCGAGCGGCAAATCCAAGTACGACGTGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                 AGGACGTCTCGCTGGACGCTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCCAATITCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                              TCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tel: 919-513-0020
Fax: 919-513-0024
Email: ralph_dean@ncsu.edu
Emq primer: T3 primer (AATTAACCCTCACTAAAGGG).
Seq primer: T3 primer (AATTAACCCTCACTAAAGGG).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fungal Genomics Laboratory
North Carolina State University
Campus Box 7251, Raleigh, NC 27695,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Construction and sequence analysis of an appressorium stage library in the rice blast fungus, Magnaporthe grisea Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Ralph A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Construction and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Choi, W. and Dean, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note-"vector: pBlueScript SK(+) Vector; Site_1: Eco Site_2: XhoI; The appressorium formation-specific cD library was constructed from conidia germinated for on an inductive surface. The library contains over 5 clones with average insert size of 1.5 kbp."

a 380 c 561 g 10 t 106 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:148305"
/clone="mgct002x101f"
/clone_11b="Magnaporthe grisea Appressorium Stage cDNA"
/dev_stage="Germinated conidia on apprressorium-inductive
surface"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="70-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Magnaporthe grisea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dean
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 74;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; DB 12; I
. 0.0095;
tches 506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ed for 5-8 hr
over 55,000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                        1276
                                                           488
                                                                                                                                                    1222
                                                                                                                                                                                                            1162
                                                                                                                                                                                                                                                                         1102
                                                                                                                                                                                                                                                                                                                                   1042
                                                                                                                      548
                                                                                                                                                                                809
                                                                                                                                                                                                                                             899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ECORI;
                                                                                                                                                                                                                                                                                                      728
                                                                                                                                                                                                                                                                                                                                                                                                 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  802
                                                                                                                                                                                                                                                                                                                                                                   788
                                                                                                                                                                                                                                                                                                                                                                                                                              848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲.
```

```
밁
                                            Š
                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 7
CNS0091P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                               Query Match
Best Local s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                               1092 GCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGA 1151
                                                                                                                                                                                                                                                                             source
1577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      427
                                                                                                                                                                                                                                                                                   Web: www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial ECORI digestion of Drosophila DNA provided by the BDGP from the 1sogenic strain y2; cn bw sp, the same strain used for the BDGP's and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be Location/Qualifiers

1 025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAACGGGGCGGCGTGCCCCCCCCCCAACCCCTGGACGCAAACCGCTACATGGCCCCTC 1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCG 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NNNNCNCCCCCCCCCCCCCCCCCC 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTCCGCTCGCAATACGGCCCCACCC 1602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGCCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
(bases 1 to 925)
                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (02-JUN-1999) Genoscope -
BP 191 91006 EVRY cedex - FRANCE (E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CNS0091P 925 bp DNA linear GSS 0. Drosophila melanogaster genome survey sequence TET3 end of BACR19D16 of RPCI-98 library from Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CNS0091P
                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genomic survey sequence.
                                                                                                                                                               /clone="BACR19D16"
/clone_lib="RPCI-98"
/note="end : TET3"
a 61 c 61 g
                                                                                                                                                                                                                                  /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:4934461
                                                                                             13.3%;
                                                                          190;
                                                                                         Score 72.4; DB 17;
Pred. No. 0.017;
                                                                         Mismatches
                                                                                                                                                                 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e - Centre National de Sequencage (E-mail : segref@genoscope.cns.fr
                                                                                                                                                               ct
                                                                          143;
                                                                                                                                                           511
                                                                       Indels
                                                                                                        Length
                                                                                                                                                             others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSS 03-JUN-1999
end of BAC #
                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1396
```

```
BASE COUNT
ORIGIN
                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 8
AG039481
LOCUS
                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1452 GCATGCCGGCCGCGTGCTCGCACG 1475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1332 CGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1152 GCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  782 GSTSGSSSSVGTSSSSDSTSTCCSCCCXMCTCCSTYBMBCYTSTSCGGSSSSSGKGGYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATCCATTCCGTGTACGTCAACGGCGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCA 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SASKSSSSGSVSSGSGSGSGSVSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGSBSSSGSSSSSSBBSCTSTSSSSSSSSSSTCSCCTCCCSYSYSSSTSSSSSTSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTCGGCCTGGCCGGGCCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SSSSSSYTTSKSTSASGSGSWSAGGGSGSTGSTSSSSSSSTSTSSSSYSSGSKSSTBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSSBSSSRCSSTSBSCSCCCSSRSVCGTSCSSSSSSSSSSSSSSTSSSSTSKSSSSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AG039481
AG039481.1
GSS.
                                                                                                                                                                                                                                                              Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes/gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee BAC library PTB This BAC end was generated during the R&D process and may have higher chance of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujiyama, A., Hattori, M., Toyoda, A., Totoki, Y., Watanabe, H. and Sakaki, Y. BAC end sequences of Library PTB
                                                                                                                                                                                                                                                      clone tracking
                                                                                                                                                                                                                                                                                                                                                                                                      Fujiyama, A., Hattori, M., Toyoda, A., Totoki, Y., Watanabe, H. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan troglodytes male lymphoblast DNA, BAC Library clone:PTB-016J15.F. Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AG039481 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota;
                                                                                                                                                                                                            LIBRARY
                                                                                                                                                                                                                                             PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 1299)
                                                                                                                                                          R.Site 1
R.Site 2
                                                                                                                                                                                                                          Sequencing: -21M13
                                                                                                                                                                                           Vector
 /ceil_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male BAC Library"
571 c 592 g 31 t 81 others
                                                                                      /organism="Pan troglodytes"
/db_xref="taxon:9598"
                                                          /sex="male"
                                                                        clone="PTB-016J15.F"
                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Metazoa;
                                                                                                                                                                      : pKS145
                                                                                                                                                                                                                                                         errors.
                                                                                                                                                          : SacI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata; Craniata; Vertebrata; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTB-016J15.F,
                                                                                                                                                                                                                                                                                                                                                                                                                     Taylor, T.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Taylor, T.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone_lib:PTB Chimpanzee Male
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                     Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS 01-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1271
```

Query Match

4.18;

Score 72.4;

멅

17;

Length 1299;

```
RESULT 9
CNS0072Q/c
                                                  KEYWORDS
                                                           VERSION
                                                                    ACCESSION
                                                                                             DEFINITION
                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 44.0 Matches 344; Conservative
                                                                                                                                              1297
                                                                                                                                                                              1237
                                                                                                                                                                                                                1177
                                                                                                                                                                                                                                                 1117
                                                                                                                                                               873
                                                                                                                                                                                                                                                                                   1062
                                                                                                                                                                                               813
                                                                                                                                                                                                                                                                                                                    1002
                                                                                                                                                                                                                                753
                                                                                                                                                                                                                                                                  693
                                                                                                                                                                                                                                                                                                                                    573
                                                                                                                                                                                                                                                                                                                                                     942
                                                                                                                                                                                                                                                                                                                                                                      513
                                                                                                                                                                                                                                                                                                                                                                                                                       822
                                                                                                                                                                                                                                                                                                                                                                                      882
                                                                                                                                                                                                                                                                                                                                                                                                      453
                                                                                                                                                                                                                                                                                                                                                                                                                                       393
                                                                                                                                                                                                                                                                                                                                                                                                                                                         763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          273 CATGACGCCCAAGATCTCGCAGGGCGTCACCGGTGGTCACGGGCAATTGCGGCATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                213 CGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
                                                                                                                                                                   CGGCCGCTCGCGGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTC
                                                                                                                                                                                                                   CCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTT 812
                                                                                                                                            GC 1298
                                                                                                                                                             GC 874
                                                                                                                                                                                                      CCNCGCGCGCGCGCGCGCGCGGCGGCGGCCGCCCGNCCCGCGCGCGCCCCNCGCGCGC
                                                                                                                                                                                                                                                                         CACCGAAGAGATCATCGAGGTGTGCGGGCGCTGAGCGCGCATGGCGGCATCTACGCCAC
                                                                                                                                                                                                                                                                                                                                                         GCAGCGCGCCGCCACCGACGAAAATCGCGGGCCATGCGGGGAACCTGGCCGAGGAAGCCAT 572
                                                                                                                                                                                                                                                                                                          Drosophila melanogaster.
Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                              CTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSS.
                                                    fly), genomic survey st
AL066742
AL066742.1 GI:4945205
                                                                            Drosophila melanogaster genome sur
BACR14B09 of RPCI-98 library from
                                                                                                 CNS00720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCAGCAACACCCCGGGGCGGGCGCGCGACCTGGGGCGTGCGGGGGGGACCGCATCGCCGC 152
                                                                      genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 0.018;
0; Mismatches 428;
                                                                                              932 bp
                                                                         ρ DNA linear GSS 03
survey sequence T7 end of F
rom Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                 GSS 03-JUN-1999
end of BAC #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10;
                                                                                                                                                                                      872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                       1176
                                                                                                                                                                                                                                                         752
                                                                                                                                                                                                                                                                         1116
                                                                                                                                                                                                                                                                                          692
                                                                                                                                                                                                                                                                                                           1061
                                                                                                                                                                                                                                                                                                                           632
                                                                                                                                                                                                                                                                                                                                            1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                392
                                                                                                                                                                                                                                                                                                                                                                            941
                                                                                                                                                                                                                                                                                                                                                                                                              881
                                                                                                                                                                                                                                                                                                                                                                                                                              452
                                                                                                                                                                                                                                                                                                                                                                                                                                                821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
            RESULT 10
AG030611/c
LOCUS
   DEFINITION
                                                       ઠ
                                                                      S
                                                                                       밁
                                                                                                      VQ
                                                                                                                        맑
                                                                                                                                        δÃ
                                                                                                                                                          닭
                                                                                                                                                                          Ş
                                                                                                                                                                                          밁
                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                            Ş,
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                          1343
                                                                                                                                                                                                           1285
                                                                                                                                                                                                                                                                               1165
                                                     504
                                                                                                                                                                                                                                                                                                               1105
                                                                                                                                                                                                                                            1225
                                                                                                                                                         684
                                                                                                                                                                                          744
                                                                                                                                                                                                                                                             864
                                                                                                                                                                                                                                                                                              924
                                                                                                                                                                                                                                                                                                                                                                                                                          source
AG030611
Pan troglodytes DNA,
                                                                                                                                                                                                                                                                                                                               147;
```

Ş 문 S

멍

1341 bp DNA clone: PTB-003A20.F,

linear

GSS 01-NOV-2001 survey sequence.

밁 Ş 밁 Ş 밁 Ş 밁 Ş 밁 Š 밁 Ş 밁 Ş 8 Ş 문

```
1403 TGTACGTCAACGGCGCGGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCC
                                                                                                                564 CSCCSCSMSCCCCCGCASCVCAGCCMSAGCMGCGCCMCCCGCCASCGSCCSCCCYCGBCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCCCGCCMGCMYGCCMCCCMGVMACCMGCGVGMMGMCMGMGRCV
                                                        GGGCGGCGTGCCGCCTCCCAACCCTGGACGCAAACCGCTACA 1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             collaboration with the Berkeley Drosophila Genome Project (BBGP).

The BDGP is constructing a physical map of the Drosophila please see http://www.fruitfly.org The BDGP Drosophila please see http://www.fruitfly.org The BDGP Drosophila please see http://www.fruitfly.org The BDGP Drosophila haron Manmoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial isogenic strain y2; cn bw sp. the same strain used for the BDGP's and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be constructed by cartial strain y2; cn bw sp. the same strain used for the BDGP's and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be constructed by the BDGP and the plant of the same strain was allowed by the BDGP's and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be a constructed by the BDGP and the plant of the BACPAC Resource Center can be a constructed by the BDGP and the BACPAC Resource Center can be a constructed by the BDGP and the BACPAC Resource Center can be a constructed by the BDGP and the BACPAC Resource Center can be a constructed by the BDGP and the BACPAC Resource Center can be a constructed by the BDGP and the BACPAC Resource Center can be a constructed by the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and the BDGP and t
                                                                                                                                                        CCGSCGCCCCYGSCCSGGSCSSCCGCCMCMVARMAVSVSCCCCCSCCMASCCCCGCVSG
                                                                                                                                                                                                                                                                                                                                                                    CGSSGCCGGCSCSCCSSGCCSCSSGCGGCGCGCCSCGCGSGSGCGSSSSCCCGCGCCS
                                                                                                                                                                                                                                                                                                                                                                                                                         CGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGCGCGGCAGCTGCAG--GCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCA 1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCTGTGGGGCACCTTCCCGCGGGGTGCTGGGGCACTATGCGCGCGACCTGGGGCCTGTTC 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - Web : www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part of collaboration with the Berkeley Drosophila Genome Project (BDGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (02-JUN-1999) Genoscope -
BP 191 91006 EVRY cedex - FRANCE (E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ephydroidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Drosophila m
/db_xref="taxon:7227"
/clone="BACR14899"
/clone_lib="Repc1-98"
/note="end : T7"
a 202 c 241 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophilidae;
to 932)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 71.8;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 melanogaster'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 17;
).021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (E-mail :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Centre National de Sequencage
-mail : seqref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243 others
   460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2; Gaps
                                                                                                                                                                                  1522
                                                                                                                                                                                                                                             565
                                                                                                                                                                                                                                                                                                         1462
                                                                                                                                                                                                                                                                                                                                                                    625
                                                                                                                                                                                                                                                                                                                                                                                                                                1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۳
```

```
Ş
           밁
                                     Š
                                                                       문
                                                                                                  Š
                                                                                                                                    밁
                                                                                                                                                                                                밁
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match

Best Local Similarity

Matches 245; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                   1405 TACGTCAACGGCGC----CGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGC 146
                                                                                                                                                                                                                               1285
                                                                                                                                                                                                                                                              1045
                                                                                                                                                                                                                                                                                                                           1105
                                                                                                                                                                                                                                                                                                                                                                            1345
                                                                                                                                                                                                                                                                                                                                                                                                         1105 GCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCCCATCCG 1164
                                                            source
                             CGCGTGCTCGCACGCCCGGCCGGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAAC 1521
GTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTG 1404
                                                                                                                                                                                                                  GGGCGCGGCCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACG 1344
                                                                                                                                                                                                                                                 CGCCCGCGCCCNCCGCNGCGCGCNCNCCGCGCGCGNNCCCGCGCGCGCGCGCGCGCGCGCGCGC
                                                                                                                                                                                                                                                                               CGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTC
                                                                                                                          (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee BAC library PTB This BAC end was generated during the R&D process and may have higher chance of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fullyama, A., Hattori, M., Toyoda, A., Taylor, T.D., Totoki, Y., Watanabe, H. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BAC end sequences of Library PTB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fujlyama, A., Hattori, M., Toyoda, A., Totoki, Y., Watanabe, H. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fujiyama,A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AG030611
AG030611.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ɗammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      npublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 1341)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            troglodytes male lymphoblast DNA, clone_lib:PTB Chimpanzee Male Library clone:PTB-003A20.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequencing: -21M13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cell_type="lymphoblast"
/cione_lib="7TB Chimpanzee Male BAC Library"
476 c 700 g 14 t 103 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="PTB-003A20;F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Metazoa; Chordata; Craniata; Vo
Eutheria; Primates; Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:16557484
                                                                                                                                                                                                                                                                                                                                                                                                                                                               44.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hattori, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : pKS145
: SacI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : SacI.
                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 71.8; DB 17;
Pred. No. 0.023;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                            307; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Taylor, T.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vertebrata; Euteleostomi; i; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                            ω.
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                              806
                                                                                                                                                                                       926
                                                                                                                                                                                                                                                                                                                 1046
                                                                                                                                                                                                                                                                                                                                             1224
                                                                                                                            866
                                                                                                                                                                                                                                                   986
```

```
Ş
                                                                                                                               밁
                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 11
CNS0091P/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
1254 CGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGCGGGCAGCTGCAGGCCGGGTACTT 1313
                                                                                                                                                                        1194 GGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGAC 1253
                                                                                                                                                                                                                                                                                                                  1134 CGGCCTGCCGCACGACGACGCCCCCATCCGCGCCTGTGGGGCCACCTTCCCGCGGGTGCT 1193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                         925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Web: www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP).

The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila nelanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial Econi digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp. the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be location/Qualifiers
                                                                                                        SSGTSSACVKCNASSSCGCCGCGMABCCMCSSSSSCCGSASARGVKVRASGGAGKRGGGS
                                                                                                                                                                                                                                                   CSBSCSCSCSSBSCSSSSMSTSSSNSSBCSSCSSSBSSSSTSSMSSSSBSSSSGSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGGCGNCGCGCC 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGAGCGCAAGGCC 1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            рабрабора предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава предостава 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygo
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqrefégenoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11y), genomic survey sequence. AL053013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster genome sur
BACR19D16 of RPCI-98 library from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CNS0091P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AL053013.1 GI:4934461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note-rend : TET3*
61 c 61 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Drosophila
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="BACR19D16"
                                                                                                                                                                                                                                                                                                                                                                                                 4.1%; Score 71.6; DB 14.0%; Pred. No. 0.023; tive 189; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             925 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             melanogaster'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA linear GSS 03-JUN-1999
Survey sequence TET3 end of BAC #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                     150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insecta; Pterygota;
                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                   866
                                                                                                            806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                                                                             ç,
```

```
밁
                                       Ş
                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL REFERENCE
                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
AG076818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                     source
              389
                           105 CCCGGGCGGCGCGACCTGGGCGTGCGCGACCGCATCGCCGCCATCGCCGATCT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        805
GCGCCAGCCCTTACAATCCGGCGTGAACGGGGCG 1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGCMCRCSCSSAAAAAASCVAASCGMMCGKSKSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACCGAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGA 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGASASHSSSSACBSSSSSCSASCWSASSSSSSSSSRSRSGGGAGGSGASSSRSSSSSSSS
                                                                                                                                                                                                                                                                                                                                                 Submitted (02-ADG-2001) Asao. Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbas@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170) Clones are derived from the chimpanzee BAC library PTB This BAC end was generated during the R&D process and may have higher chance of clone tracking errors.
                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                          clone tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (02-AUG-2001) Asao Fujiyama,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Totoki, Y., Watanabe, H. and Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujlyama, A., Hattori, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujiyama, A., Hattori, M., Toyoda, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AG076818 115:
Pan troglodytes DNA, clone:
AG076818
AG076818.1 GI:16628620
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                       LIBRARY
                                                                                                                                                                                                                                                                                                                                  PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       toki,Y., Watanabe,H. and Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end sequences of Library PTB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  troglodytes male lymphoblast DNA, clone_lib:PTB Chimpanzee Male Library clone:PTB-071C05.R.
                                                                                                                                                                                                                                                            Vector
R.Site 1
R.Site 2
                                                                                                                                    34
                                                              Conservative
                                                                                                                                                                                                                                                                                                                 Sequencing: M13Rev
                                                                                                                          /cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male
488 c 514 g 23 t
                                                                                                                                                                                  /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="PTB-071C05.R"
                                                                                                                                                                           /sex-"male"
                                                                                                                                                                                                                                            ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 to 1152)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metazoa; Chordata; Craniata; V
Eutheria; Primates; Catarrhini;
                                                                        45.38;
                                                                                                                                                                                                                                                          : pKS145
: SacI
: SacI.
                                                             0;
                                                                        Score
Pred.
                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Toyoda, A.,
nd Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1152
                                                                          71.2;
No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 bp DNA
PTB-071C05.R,
                                                                        DB 17;
.028;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           532
                                                           368;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Taylor, T.D., Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Taylor, T.D., Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Vertebrata;
                                                                                                                             BAC Library"
93 others
                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genomic survey sequence.
                                                                                    Length 1152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                          4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSS
                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              746
                                                       'n
```

```
S
                                      밁
                                                      Š
  밁
                                                                         밁
                                                                                          Ş
                                                                                                             밁
                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                밁
                                                                                                                                                               Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                             δÔ
                                                                                                                                                                                                                                                                                                                                ġ
                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                    밁
  1046
                    764
                                     986
                                                                         926
                                                       704
                                                                                          644
                                                                                                             867
                                                                                                                              584
                                                                                                                                               807
                                                                                                                                                                                   747
                                                                                                                                                                                             464 CCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCG 523
                                                                                                                                                                 524
                                                                                                                                                                                                                      687
                                                                                                                                                                                                                                       405
                                                                                                                                                                                                                                                         627
                                                                                                                                                                                                                                                                          345
                                                                                                                                                                                                                                                                                             567
                                                                                                                                                                                                                                                                                                              285
                                                                                                                                                                                                                                                                                                                                509
                                                                                                                                                                                                                                                                                                                                                  225
                                                                                                                                                                                                                                                                                                                                                                    449
                                                                                                                                                                                                                                                                                                                                                                                      165
cccecececcececece
                                                 ACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGG
                                                                                     CGAGCGCTTCGCCGACTACCTGGACGCGTTGCGG-GCCACGCCGGCGGCGCCGTCAACGCCG 463
                  ACGTGCCGGTGGTGATCTCG
                                CCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCGCGCCACCACCGAAGAGA
                                                                                                                                         CCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCG
                                                                                                                                                                                                                                                  GGCGCACGCCAACCCGCCCGCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTT 404
                                                                                                                                                                                                                                                                                      GATCTCGCAGGGCGTCACCACGGTGGTCACGGCGATTGCGGCATCAGCCTGGCGCCGCT 344
                                                                                                                                                                                                                                                                                                                                            CATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAA 284
                                                                                                                                                                                                                                                                                                                                                                               GTCGGACGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTT
                                                                                                                                                                                                                                                                                                                         GGCCGCCGCCCCGNGCGGNCGGNNGGCGCGCGGNGNCCCCGGGGCGCGCGCGCGAG
1065
                  783
                                                                                                        -cececececec
                                 1045
                                                 763
                                                                   985
                                                                                      703
                                                                                                       925
                                                                                                                        643
                                                                                                                                         866
                                                                                                                                                           583
                                                                                                                                                                                                                746
                                                                                                                                                                              908
                                                                                                                                                                                                                                                                                                                                                                                224
```

REFERENCE AUTHORS COMMENT VERSION KEYWORDS ACCESSION RESULT 13 AG030607 LOCUS REFERENCE SOURCE JOURNAL TITLE TITLE ORGANISM JOURNAL AUTHORS Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (SC); 1-7-22 Suehiro-Chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbeségsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee BAC library PTB This BAC end was generated during the RAD process and may have higher chance of Direct Submission Fujiyama, A., Hattori, M., To Totoki, Y., Watanabe, H. and Pan troglodytes male lymphoblast DNA, clone\_lib:PTB BAC Library clone:PTB-003A18.F.
Pan troglodytes
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pujiyama, A., Hattori, M., Toyoda, A.,
Totoki, Y., Watanabe, H. and Sakaki, Y. AG030607 1530 Pan troglodytes DNA, clone: AG030607 Unpublished BAC end sequences of AG030607.1 GI:16557480 GSS. (bases 1 to 1538) Library Toyoda, A., 1 nd Sakaki, Y. 1538 bp DNA ne: PTB-003A18.F, Taylor, T.D., Taylor, T.D., Hominidae; genomic linear Yada, T., survey Chimpanzee Male Euteleostomi; GSS 01-NOV-2001 Pan. sequence.

```
밁
                               Ş
                                                       밁
                                                                            Ş
                                                                                                   밁
                                                                                                                        Š
                                                                                                                                                문
                                                                                                                                                                     Š
                                                                                                                                                                                              밁
                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 422;
1106 CGNCNGCGCGGCGCGCGCGCGCGCGCCNGCGCCGGCNGCGCGCGCNCGCCGGNCNCNN 1165
                       1331 TCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCG
                                                       1046
                                                                                                                                                                       1151
                                                                                                                                                                                                 1091 TGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCTGCCGCACGACG 1150
                                                                                                                                                                                                                                                     1031 ACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACG
                                                                                                   986
                                                                                                                                                                                             867
                                                                                                                                                                                                                                          807
                                                                                                                                                                                                                                                                                                                                      690
                                                                                                                                                                                                                                                                                                                                                                                   630
                                                                                                                                                                                                                                                                                        750
                                                                                                                                                                                                                                                                                                               971
                                                                                                                                                                                                                                                                                                                                                             911
                                                                                                                                                                                                                                                                                                                                                                                                         851
                                                                                                                                                                                                                                                                                                                                                                                                                                570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390
                                                                                                                                                                                                                                                                                                                                                                                                                                           791 AGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCG 850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       732 GGAGGAAACCTTC-CGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGT 1330
                                                                                                              ACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGC 1270
                                                                                                                                                           AGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCGCG 1210
                                            GCCGCCGCGCGCCCNGCCCCCCCCNCNNCGCGCGCGGNNCNCNCGCGGGCNGCCCGNNCG
                                                                                         ACCNCGGGCGCGCGCGCGCGCGCGCGNNCGNNCGCGCGCCNCGGGCGCCCNCCGCGG
                                                                                                                                     CCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGGCGAGCGCGGCAAATCCAAGTACG
                                                                                                                                                                                                                                                                                                                           TCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCC
                                                                                                                                                                                                                                                                                                                                                                        CCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGC 910
                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGCCCGNGCGCGCCGGGCGCCCGCCGCGCCNCCGCGNGCCGGCCGNNGCGGCCC 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACAICGTGGCCGCGCT 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clone tracking errors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequencing: -21M13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vector
R.Site
R.Site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /sex="male"
/cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male
/clone_s 552 g 64 t 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Pan troglodytes"
/db_xref="taxon:9598"
/clone="PTB-003A18.F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : pKS145
: SacI
: SacI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 71.2; DB 17;
Pred. No. 0.03;
0; Mismatches 634;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                           1045
                                                                                                                                                                                   925
                                                                                                                                                                                                                                866
                                                                                                                                                                                                                                                      1090
                                                                                                                                                                                                                                                                                                    1030
                                                                                                                                                                                                                                                                              806
                                                                                                                                                                                                                                                                                                                             749
                                                                                                                                                                                                                                                                                                                                                   970
                                                                                                                                                                                                                                                                                                                                                                          689
                                                                                                                                                                                                                                                                                                                                                                                                                       629
```

4:

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                           COMMENT
           Query Match
Best Local S
Matches 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
AG127788/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      덩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1405 CGCNCGCNCGCNCGNGCNGNGGCGAGNGCGNGNCGCGNC 1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGCCTGCGCCGAGCGCAAGGCCCGGAAAATGACCCTGC 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCCTCCCTCCGCAATACGGCCCCACCGATATCGTGGGCAAGGAAGTGATGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCGTGAACGGGGCGGCGTGCCGCCCCCTCCCAACCCTGGACGCAAACCGCTACATGG 1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCATGCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCAGCCCTTACAAT 1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (02-AUG-2001) Asao Fujlyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/,
                        Similarity
                                                                                                                                                                                                                                                                                                                                               (E-mail:chimpbes@gsc.riken.go.jp, URL:h
Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee
                                                                                                                                                                                                                                                                                                                       clone tracking errors.
                                                                                                                                                                                                                                                                                                                                       was generated during the
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fujlyama,A., Hattori,M., Toyoda,A., Taylor,T.D., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pan troglodytes DNA, clone: AG127788 AG127788.1 GI:16656953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fujiyama, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fujiyama,A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BAC end sequences of Library PTB
                                                                                                                                                                                                                                                                            LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fujiyama, A., Hattori, M., Toyoda, A., Totoki, Y., Watanabe, H. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pan troglodytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AG127788
                                                                                                                                                                                                                                                                                                           PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ?ukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
?ammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 1129)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     troglodytes male lymphoblast DNA, Library clone:PTB-138M02.R.
         Conservative
                                                                                     54
                                                                                                                                                                                                                              R.Site 2
                                                                                                                                                                                                                                                                                         Sequencing: M13Rev
                                                                                                                                                                                                                                           R.Site 1
                                                                                                                                                                                                                                                             /ector
                                                                        /cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male BAC Library"
/clone_lib="PTB Chimpanzee Male BAC Library"
/ 182 others
                                                                                                                                  /clone="PTB-138M02.R"
/sex="male"
                                                                                                                                                                                                            te 2 : SacI.
Location/Qualifiers
                                                                                                                                                            organism="Pan troglodytes"

db_xref="taxon:9598"
                       4.0%;
                                                                                                                                                                                                                                           : pKS145
   Score 71; DB 1
Pred. No. 0.03
0; Mismatches
        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1129
                                                                                                                                                                                                                                                                                                                               chimpanzee BAC library PTB This BAC end process and may have higher chance of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTB-138M02;R,
                   DB 17; Length 1129;
    565;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Taylor, T.D., Yada, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone_lib:PTB Chimpanzee Male
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear GSS (
 ų.
 .Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-NOV-2001
/ sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1450
2
```

ş

822 GCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGC 881

```
ACCESSION
VERSION
                                                                                                                                                                      RESULT 15
BG852363
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               몋
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                             1722 CGAGCTGGGCCAGATCGCCC 1741
                                                                                                                                                                                                                                                                                                                                                                                                      1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1602 CGATATCGTGGGCAAGGAAGTGATGGGCGCGCGCCTGCGCGCCGAGCGCAAGGCCCGGAA 1661
                                                                                                                                                                                                                                                                   159
                                                                                                                                                                                                                                                                                                                                                           219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1362 CTTCGAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCC 1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1242 ATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCA 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1062 CATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCAT 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1002 CGCGGCCGAGCGCGCAAATCCCAAGTACGACGTGGTGCCCCGAGCTGCAGCCGGCGGCGCGC 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          876 resessedence de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la reconstant de la 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            882 GTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACG 941
                                                                                                                                                                                                                                                     CNNNCTCNNNNNNNNCCCNC 140
                                                                                                                                                                                                                                                                                                                        NNNNNNNNNCCNNCCCANCETGCGGCCTNNNNGGGGCCCGCACNNCNCCCCCCA 160
                                                                                                                                                                                                                                                                                                                                                                     AATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                CGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCT 1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCAC 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1281 bp mRN 1024034A03.Y2 C. reinhardtii CC-1690, Chlamydomonas reinhardtii cDNA, mRNA s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chlamydomonas reinhardtii.
                                               BG852363.1 GI:14233547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATCGGCTCCGACGGCTGCCGCACGACGACGACGCCCCCATCCGCGCCTGTGGGGGCACCTT 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA, mRNA sequence.
                                                                                                                                   mRNA
                                                                                                    normalized,
                                                                                                                                linear
                                                                                                    Lambda
                                                                                               EST 29-MAY-2001
umbda Zap II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            997
```

```
Ş
                                                                                                       문
                                                                                                                                                            Ş
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 515; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
756 CGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCCAGCCCAATTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                      636 CGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCAACCCA 695
                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                             516 GCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190 ссесесссессессемоссеминосе в собемесе поставования с посторования с поставования                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               456 CAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCCGGGTCATGCCGGACTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               396 TTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGT 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            336 GGCGCCGCTGGCGCACCCCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGGTC 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70
                                                              CAAACGCNNNCGGGAAAAACNCACCCCTCCTTCTTGTCGCNNNNNNGGGCGCGCNCNCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Duke University
Durham, NC 27708-1
Tel: 919 613 8159
Fax: 919 613 8177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Grossman, A., Davies, J., Federspiel, N., Harris, E., Lefebvre McDermott, J.P., Silflow, C., Stern, D. and Surzycki, R. Analyses of the Chlamydomonas reinhardtii Genome: A Model, Unicellular System for Analyzing Gene Function and Regulat Vascular Plants; project phase 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chlamydomonas reinhardtii
Bukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;
Chlamydomonadaceae; Chlamydomonas.
1 (bases 1 to 1281)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Charles Hauser
DCMB Box 91000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Anoli This library constructed by John—li Econt; Site_4:
McDermott, combines cDNAs from CC-1690 cells grown to
mid-log phase in TAP (acetate-containing) medium in the
light, TAP medium in the dark, HS (minimal) medium in the
ambient levels of CO2 and HS medium bubbled with 5% CO2.
Synthesized. The CDNA was directionally cloned into lambda
Synthesized from cach sample, pooled and CDNA
ZAP II (Stratagene) in the ECORI (5') and XhDI (3') sites.
PBluescript II SK. plasmids were excised from the lambda
phage. The library was normalized using method 4 described
in Bonaldo et al (1996) Genome Research 6: 791-806."
83 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chauser@duke.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Vector: pBluescript II SK-; Site_1: EcoRI; Site_2: KhoI; This library, constructed by John Davies and Jeffrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="C. reinhardti1 CC-1690, normalized, Lambda zap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /strain="CC-1690 wild type mt+
/db_xref="taxon:3055"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Chlamydomonas reinhardtii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Score 71; DB; Pred. No. 0.031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 12;
0.031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gene Function and Regulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 1281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lefebvre, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                 487
                                                                                                                                                                                     428
                                                                                                                                                                                                                                                                                                                                                             635
                                                                                                                                                                                                                                                                                                     369
                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
```

```
1475 GCACGGCCGCCTGAGCCCG-GCGCCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGTGC 1533
1258 GGCC 1261
                                                                                                                            1534 CGCC 1537
                                                                                                                                                                                                             1198 conéccédes de decedes de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de conferences de confer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1415 GCGCGCCGGTCTGGCAAGAGCAGCGTTCACCGGCCAGCATGCCGGCGCGCGTGCTCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1295 AGCTGCAGGCCGGGTACTTCGCCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGTGGCCGATA 1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1236 GGCGGTATGGAAGATGACCGGCCTGACCGCGCGCGCGCTTCGGCCTGGCCGGGCGCGGGC- 1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1176 CACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGGTGGAGAC 1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1116 GACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCGCATCCGCGCCTGTGGGG 1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1056 CGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCC 1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          996 TGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACCTGGTGCCCGAGCTGCAGCCGGC 1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           936 CGGACCATCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGA 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 608 cécededececesecenée de de cécede de cécedes de cécedes de cécedes de cecedes de cécedes de cecedes de cécedes de cécedes de cécedes de cécedes de cécedes de cecedes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   876 GGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGC 935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                816 CCGCTCGCGGAGACGCTGCCGCTGATCGAGGCCGCCATGGCCGCGGGGCCAGGACGTCTCGCT 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       547
```

Search completed: May 11, 2003, 10:48:47 Job time: 28329 secs

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM nucleic -
14
15
16
17
18
19
20
21
                                                                                                                                                                                                                                                                                                                                                                                                                                       score greater
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No.
                                                                                                                                                                                                                                                                                                                                               Score
                            81.
81.
81.
80.
                                                                                                                                                                                                                                                                                                                                                                                                                  is derived by analysis of the total
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                           Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                          is the number of results predicted by chance to have a ter than or equal to the score of the result being printed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-009-782-1
1758
1 gaattocacttgatcgcgga......ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6135869 seqs, 2365311053 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       May 11, 2003, 03:03:15; Search time 753 Seconds (without alignments) 11044.401 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pending_Patents_NA_New: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'cgn2_6/ptodata/2/pna/US10_NEW_COMB.seq2:*
/cgn2_6/ptodata/2/pna/US60_NEW_COMB.seq:*
/cgn2_6/ptodata/2/pna/US60_NEW_COMB.seq2:*
      US-10-329-079-6

US-10-156-761-6160

US-10-314-657-1

US-10-98-605-7

US-10-271-889-50

US-10-271-889-46

US-10-156-761-4343

US-10-156-761-1922
                                                                                                                                                                           PCT-US02-37547-3
PCT-US02-37547-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2/pna/US09_NEW_COMB.seq2:*
2/pna/US09_NEW_COMB.seq3:*
2/pna/US10_NEW_COMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                 score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NEW_COMB:seq: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12271738
                                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                            sequence
                                            1, Appli
7, Appli
50, Appli
3, Appli
                                                                                                                                                     3, Appl
1, Appl
2, Appl
                                                                                                                                                                                                   4, Appli
6189, Ap
                                                                                                         6, Appli
6160, Ap
                                                                                                                                       Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-282-122A-14027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PPLICANT
```

Wall, Daniel Trawick, John

Carr, Grant

Robert

Ohlsen, Kari Zyskind, Judith

Haselbeck, Robert , Liangsu udio, Carlos

Zamudio, Carlo Malone, Cheryl

Application US/10282122A

			c	,	2	ი		ი															o	C	,	
•	4	4		3 8	<b>5</b>	41	40	9	ς α	, (	3 6	2	ω 5	4	4	, ,	) L	ى ر -	ָ כ	2	28	27	26	2	1 4	) k
	75.6	10.0	10.0	10.6	70.0	76.2	77.4	77.8	//.8	11.8	10.	7.0	78.2	78.2	78.2	70.0	,		70.6	79.1	79.2	79.2	79.2	19.2	00.	00.
	4.3	4.3	4.4		٠.		4.4	4.4	4.4	4.4		• 4	4 4	4.4	4.4	4	4.		» л с	n (	<b>~</b>		. 4.5	4.5	4.0	. 4
	1719	82746	9975	07970	100	5070	4851	9025608	5304	3759	01944	100	18876	18331	12249	1404	0877	*	4000	1001	1461	1461	1458	1458	125/46	71817
	. α	μ.	Н		٠,	0	ø	æ	œ	00	v	v	۰ د	9	9	œ	α	v	o	<b>,</b>	0	30	ø	œ	α	œ
	US-10-156-761-3854	PCT-US02-37547-56	PCT-US02-37547-4	US-10-160-539A-21	CO. TO. 201-201-TT	TO-10-201-205-11	US-10-282-1224-25489	US-10-156-761-1	US-10-156-761-3184	US-10-156-761-2268	US-10-329-079-34	US-10-329-0/9-42	TO-10-330-070 to	US-10-267-255-96	US-10-267-255-74	US-10-156-761-3773	US-10-369-493-42316	US-10-366-683-930	US-10-419-128-930	US-10-300-063-9/2	10-10-30C-030 010 .	US-10-419-128-972	US-10-366-683-1112	US-10-419-128-1112	US-10-156-761-15102	US-10-156-761-2884
	Sequence 3854, Ap	Sequence 56, Appl	Sequence 4, Appli	Sequence 21, Appl	Sequence 11, Appl	A 'soace sample	•	Sequence 1 Anni 4	Sequence 3184. An	Sequence 2268. Ap	Sequence 34, Appl	Sequence 42, Appl	rddy 'os annae	redges (s. possession	Seguence 74 Appl		Sequence 42316, A	Sequence 930, App	Sequence 930, App	Sequence 972, App	9/4/	100	111	1113	Sequence 15102. A	Sequence 2884, Ap

## ALIGNMENTS

PRIOR APPLICATION NUMBER: 60/206,848
PRIOR ETLING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR ETLING DATE: 2000-09-06
PRIOR ETLING DATE: 2000-09-06
PRIOR PPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR FILING DATE: 2000-09-09
PRIOR FILING DATE: 2000-09-09 Remaining Prior Application data removed NUMBER OF SEQ ID NOS: 78614 SOFTWARE: Patentin version 3.1 PRIOR APPLICATION NUMBER: 60/253,625 PRIOR FILING DATE: 2000-11-27 PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-22 PRIOR APPLICATION NUMBER: 60/267,636 PRIOR FILING DATE: 2001-02-09 PRIOR APPLICATION NUMBER: 60/269,308 PRIOR FILING DATE: 2001-02-16 APPLICANT: Xu, H.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20 PRIOR APPLICATION NUMBER: 60/191,078 PRIOR FILING DATE: 2000-03-21 APPLICATION NUMBER: 60/242,578 FILING DATE: 2000-10-23 Yamamoto, Ro Forsyth, R. See File Wrapper or PALM

```
Ş
                                 밁
                                                      Ş
                                                                              문
                                                                                                 õ
                                                                                                                           문
                                                                                                                                               S
                                                                                                                                                                      용
                                                                                                                                                                                           S
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TYPE: DNA
; ORGANISM: Burkholderia mallei
US-10-282-122A-14027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
853 GACATCACGATCACGTGGTCCGATCCGGCATCCGGAAATGGCGGGCAAGCTGCTGAGGACG 912
                                                                                                                                                                      673
                                                                                                                                                                                            760
                                                                                                                                                                                                                   613
                                                                                                                                                                                                                                                                553
                                                                                                                                                                                                                                         700
                                                                                                                                                                                                                                                                                    640
                                                                                                                                                                                                                                                                                                            493
                                                                                                                                                                                                                                                                                                                                 580
                                                                                                                                                                                                                                                                                                                                                        433
                                                                                                                                                                                                                                                                                                                                                                               520
                                                                                                                                                                                                                                                                                                                                                                                                    373
                                                                                                                                                                                                                                                                                                                                                                                                                          460
                                                                                                                                                                                                                                                                                                                                                                                                                                                 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100 AACACCCCGGGGGGGGGGGGCGACCTGGGCGTGCGGGGGACCGCCATCGCCGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40 CAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                           CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAA
                                                                   TGCTATCCGTACAGCCGCAGCTCGACGCTCGACATCAAGCAGGCGACGGCGACATC
                                                                                   GCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGA 939
                                                                                                                              TCGCGCGAGACGCTGCCGCTGATCGATCGCCCATGGCGCCCAGGACGTCTCGCTGGAC
                                                                                                                                                          GCACGCGTGCCGGTGATCTCGCATCTGAAGTGCGCGGGCCGTCGAACTGGGGGCGC
                                                                                                               AGCGCCGAAGTGCTCGCGTCGCTCGAGCGCGCGCGCGCATCCAGCCCGTCGGCTGCGAC
                                                                                                                                                                         CTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCGC 819
                                                                                                                                                                                                        CGCGACGAAGGCGAGCACATCGTGGCCGCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAG
                                                                                                                                                                                                                                                     GAGGTGATGGCGCTCGCGAGCCGCTCGCGAACGCGGGCGCCGTCTACACGACGCACATG
                                                                                                                                                                                                                                                                         GGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCGCCACCACCGAA
                                                                                                                                                                                                                                                                                                                                             GCGGCGACCGGCGAAATCGCGGCGATGCGCGCACTCGAGGAGGAGGCGCTCGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                          GTCGCGGCGCTCGTCGGCCACACCGCGCTGCGCAGCAACCAGATGGACCGGCTCGACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGGCAATTGCGGCATCAGCCTGGCG
                                                                                                                                                                                                                                                                                                                                                                   GCCGCCACCGACGACAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGGGTCATGCCGGACTTGCAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                      CGATCCGA-----TGAACCTGCTCGGCGCGAAGCCGGCCGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGTCGCGCTC------AAGGGCGATCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGAAGATCTCGCAGGGCGTGACGACGGTGATCGTCGGCAACTGCGGGATCAGCGCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTTCGTCGACGTGCACGACGACGACGCACGTGATCGACGCGCCGCAGATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 60.3 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 483; DB 9;
Pred. No. 2.1e-66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 520;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                   852
                                                                                                             792
                                                                                                                                    879
                                                                                                                                                             732
                                                                                                                                                                                                         672
                                                                                                                                                                                                                               759
                                                                                                                                                                                                                                                                            699
                                                                                                                                                                                                                                                                                                   552
                                                                                                                                                                                                                                                     612
                                                                                                                                                                                                                                                                                                                        639
                                                                                                                                                                                                                                                                                                                                             492
                                                                                                                                                                                                                                                                                                                                                                    579
                                                                                                                                                                                                                                                                                                                                                                                                               519
                                                                                                                                                                                                                                                                                                                                                                                           432
                                                                                                                                                                                                                                                                                                                                                                                                                                        372
                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
```

```
RESULT 2
US-10-282-122A-24070
                                               밁
                                                                                           밁
                                                                                                                                      ₿
                                                                                                                                                                                밁
                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                        밁
                                               1333
                                                                     1420
                                                                                          1273
                                                                                                               1360
                                                                                                                                                         1300
                                                                                                                                     1213
                                                                                                                                                                               1153
                                                                                                                                                                                                   1240
                                                                                                                                                                                                                         1093
                                                                                                                                                                                                                                              1180
                                                                                                                                                                                                                                                                    1033
                                                                                                                                                                                                                                                                                         1120
                                                                                                                                                                                                                                                                                                                                  1060
                                                                                                                                                                                                                                                                                                             973
                                                                                                                                                                                                                                                                                                                                                        913
                                       CTGTCTTACCGCGACGGTGCGCCCACGGGCGTGCGCGGGCCGCTTCGTCGCGCGC
                                                         ACGTTCGAGCAGCCGCAGCAGCCGCGCACGGGATCGAGGCGGTATGGGTGAACGGCGCG
                                                                                             ACCTTCGAACACCCTACCGAGCGCGCCGCCGCGATCCATTCCGTGTACGTCAACGGCGCG 1419
                                                                                                                           CAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCC 1359
                                                                                                                                                                                   TTTCCGCGCGTGCTCGGCTACTACGCGCGCGACGAGCGGCTGATTTCGCTCGAGGACGCG
                                                                                                                                                                                                                               TTCCCGCGGGTGCTGGGGGACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCG
                                                                                                                                                                      ATGGTGGGCTCCGACGGCCTGCCGAACGATCCGCTGCCGCATCCGCGCCTCTGGGGCGCG
                                                                                                                                                                                                                                                                              ATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCGCCATCCGCGCCTGTGGGGCCACC
                                                                                                                                                                                                                                                                                                                   GCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACC
                                                                                                                                                                                                                                                                                                     GCCGTGTATCACAACATGTCGGAGGACGACGTGCGCCGGATCCTGTCGCACCCGGCGACG
                                                                                                                                                                                                                                                                                                                                               1389
                                                                                                                            1272
                                                                                                                                                                       1212
                                                                                                                                                                                                                 1152
                                                                                                                                                                                                                                     1239
                                                                                                                                                                                                                                                            1092
                                                                                                                                                                                                                                                                               1179
                                                                                                                                                                                                                                                                                                                          1119
                                                                                                                                                                                                                                                                                                     1032
                                                                                                                                                                                                                                                                                                                                                 972
```

```
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR PPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR APPLICATION NUMBER: 60/230,337
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE OF INVENTION: Identification of Essential PILE REFERENCE: ELITRA.034A CURRENT APPLICATION NUMBER: no not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus not consent fillus no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 24070,
PRIOR APPLICATION NUMBER: 60/269,308 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/257,931 PRIOR FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                               APPLICATION NUMBER: FILING DATE: 2001-02
                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/242,578
FILING DATE: 2000-10-23
APPLICATION NUMBER: 60/253,625
FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wall, Daniel
Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ohlsen, Kari
Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zamudio, Carlos
Malone, Cheryl
Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yamamoto,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/10282122A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Liangsu
                                                                                                                     2001-02-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Robert
                                                                                                                                                                      60/267,636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genés in Microorganisms
```

data removed

See File

Wrapper

or PALM

```
밁
                                                     Ş
                                                                                   밁
                                                                                                         Š
                                                                                                                                    밁
                                                                                                                                                           õ
                                                                                                                                                                                                           Š
                                                                                                                                                                                      맑
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                        멼
                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; NUMBER OF SEQ ID NOS: 78614
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 24070
; LENGTH: 1437
; TYPE: DNA
; ORGANISM: Klebsiella pneumoniae
US-10-282-122a-24070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                      899
                                                                                                                                                                                                              716
                                                                                                                                                                                                                                      809
                                                                                                                                                                                                                                                                                     548
                                                                                                                                                                                                                                                                                                                                                               536
                                                                                                                                                                                                                                                                                                                                                                                                                                          368
                                                                                                                                                                                                                                                               656
                                                                                                                                                                                                                                                                                                               596
                                                                                                                                                                                                                                                                                                                                        488
                                                                                                                                                                                                                                                                                                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                                                 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      68 CTGATGTGGCGGTGAAGGGCGATCGAATTATGGCTATCGCCCCGGCGCGCTGGACGTTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
nes 787; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
GGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGGGGACCTGGATGAAGTCGCGGCCGAGCGCG
                       CCAGCTCATCGACGCTGGATATGAAACAGGTGACCGACGAGTTTGATATCGTGATCACCT
                                             CCGGCTCCACCATGCTCAAGCAGGACGCGGCGGACGACGATCATCACCT
                                                                                                  CGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGG
                                                                                                                                                                            ACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGGAGCTGGACGTGCCGGTGG
                                                                                                                                                                                                                                                                             GTACCGGGCTGGCCTACGCCAGCGCCTTCCAGTCGACTACCGAAGAGGTGATGGCGCTGG
                                                                                                                                                                                                                                                                                            CGACCGGCGCCTTCTACCCGCCGCCGCGCGCGCGCCACCGAAGAGAATCATCGAGGTGT
                                                                          CCTTTTTCGATGAGATGCGCCAGCAGCAGGATATCGCCTGCGACTGTTATCCCTATTCAG
                                                                                                                           TGGTTTCGCACCACAAGTGCGCCGGGGCGAAAAACTGGGGGGCGTACCAAAGAGACGCTGG
                                                                                                                                           TGATCTCGCACCACAAGGTCATGGGCCCAGCCCCAATTTCGGCCGCTCGCGCGGAGACGCTGC 835
                                                                                                                                                                                                                            CGGAAGAGCTGGCGGCCGGGAAGGGCGTCTATACCACCCATTTACGTTCAGAGTTTGAGC
                                                                                                                                                                                                                                                    AAATCGCCGGTATGCGCGTACAGCTACGCGATGCGCTGCGCCAGGGGAGCATTAGGGCTCA
                                                                                                                                                                                                                                                                                                                                                    AAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTT 595
                                                                                                                                                                                                                                                                                                                                                                               GTCACACCGCGCTGCGTAATAACCATATGGACGATCTGTTTCGTCCGGCGAACGAGACGG
                                                                                                                                                                                                                                                                                                                                                                                                       GCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCTTATGCCCATGCGGTGGAAGCGGCGCGACCGTCGCTGAATGTCGGCACGTTAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACA: 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGACCTGGGCGTGCGCGGCGACCGCGATCGGCCGATCGGCGATCTGTCGGACGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCCGCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGC---GCACGCCA 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCATGATGATATCAACGTGATCCGCATGCCGGAGTACTTGCCGAAGCTCAGCCAGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGAGCAGGTGATTGATGGCCAGGGCGGGTACTGGCGCCCGGGCTTTATTGATGTGCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGACTGGCTTTTCAAAAACGTCACGGTGATCGACGGGAGCGGCGGGCCGCAATACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 425.4; DB 9;
Pred. No. 1.8e-57;
0; Mismatches 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 1437;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
  1015
                                                  955
                                                                                                     895
                           907
                                                                          847
                                                                                                                             787
                                                                                                                                                                                                                                                                                                     655
                                                                                                                                                                                                                                                                                                                               547
                                                                                                                                                                            727
                                                                                                                                                                                                      775
                                                                                                                                                                                                                            667
                                                                                                                                                                                                                                                      715
                                                                                                                                                                                                                                                                               607
                                                                                                                                                                                                                                                                                                                                                                                                        535
                                                                                                                                                                                                                                                                                                                                                                                                                                                            475
                                                                                                                                                                                                                                                                                                                                                                                487
                                                                                                                                                                                                                                                                                                                                                                                                                                  427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲
```

```
APPLICANT: SHIBA, TADAYCSHI
APPLICANT: SHIBA, TADAYCSHI
APPLICANT: SHEAT, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVESTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-08-02
SEQ ID NO 3269
SEQ ID NO 3269
SEQ ID NOS: 15109
SEQ ID NO 3269
I LENGTH: 1590
TYPE: DNA
ORGANISM: Streptomyces avermitilis
FEATURE:
NAME/KEY: CDS
LOCATION: (1). (1590)
          밁
                              Š
                                                               밁
                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-156-761-3269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                      Matches
                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3269, Application GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1328 AACGACCGGCGGACGGCATTGAGGCGGTGATGGTCAACGGCGTGATGAGCT 1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1208
                                    119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1256 GCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCAGCTACCTGCAGGCCGGGTACTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1148 GCCACTATAGCCGCGAGCAGCTATTCCCGCTGACTACCGCGGTACACACAAGATGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1076
          62
                                                                       Local
                                                               N
CCGACGTCGGTATCACCGGCGGCCGGATCGCCGAGATCCGCCGCGACGGCCCCGGCCCTGG
                          CCGACCTGGGCGTGCGCGACCGCATCGCCATCG---GCGATCTGTCGGACGCCG
                                                      TGGATCTCGTCATCCGTGATGTGCGCGTCGTCGACGGCACCGGCGGCGCGCGTCCTGCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTA 1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCTGTCGGCGCGCTTCCAGCTGGCGGATCGCGGGCTGGTGAAAATTGGCTACTTTG
                                                                                                                     586;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCTGCCGAACGATCCGATGCGCATCCGCGCCTGTGGGGCGCCTTCCCGGGGGTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCTGCCGCACGACGACCGCCCGCATCCGCGCCTGTGGGGGACCTTCCCGCGGGTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCACTATGCGCGGCGACACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCCGAAGCGCAGCCGGAGCAGCAGCAGCAGCAGATCGCCGATGAGTGGC
                                                                                                                              9.2%;
Similarity 50.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ISHIKAWA, JUN
HORIKAWA, HIROSHI
                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/10156761
                                                                                                                0,
                                                                                                               Score 161.2; DB 8;
Pred. No. 2e-16;
0; Mismatches 538;
                                                                                                               Indels
                                                                                                                                         Length 1590;
                                                                                                             42;
                                                                                                            Gaps
                           175
 121
                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   967
                                                                                                             6,
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                  1064
                                                                                                                              1004
1124 CCGCCCGCCGGCTGCTCCTCGACGAC
                   1175 GCACCTTCCCGCGGGTGCTGGGGCAC
                                                                                                                                                                                                                                                                                                                                                  875
                                                                                                                                                                                                                                                                                                                                                                                                                818
                                                                                                                                                                                                                                                                                                                                                                               779
                                                                                                                                                                                                                                                                                                                                                                                                                                             719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               638 AAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATTGGCGGCATCTACGCCACCACA 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                 GCGTGCCCATCGAGTGGGACACGATCGAGATCTGGGGCGTGAGCGACCCGGCACTCGCCC
                                                       CCTACGTCGGCAGCACCGTCCAGGCCTCGGCCGACCTGCGCGGCGAGGCCCCCTGGACCA 1123
                                                                                    CGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATCCGCGCCTGTGGG
                                                                                                                                               CCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCC
                                                                                                                                                                                                                                                                       CCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGG 994
                                                                                                                                                                               -----GTCGCGGAGCGGATCCGCCACGCCATGGAGGTCGTCGCGGCGGACGGCTGTCACG
                                                                                                                                                                                                   ATGAAGTCGCGGCCGAGCGGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGG
                                                                                                                                                                                                                                           TCGACACCTATCCGTACACCCCCGGCTGCACCACGCTCGTG------GCCATGCTGC
                                                                                                                                                                                                                                                                                                                             TGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGGTGCTGC
                                                                                                                                                                                                                                                                                                                                                                     GGCACCGGACCTGCTCGACCTCGACGCCGCCGACGACATCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                AGGCCCGCTGCCCCCATCTCGCCCACGCCACGATGAACTTCGGGGTGAACAAGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCECTCETACEEGGGGGGGGGCGCTCCAGGCGTACGAGGAGATGGTGGCCCTCACCCGCG
                                                                                                                                                                                                                                                                                                                                                                                       OCTCGCGAGACGCTCGCCCTGATCGACGCCCATGGC---GCGCAGGACGTCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCCAGCCCAATTTCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAGCCTTCCGCATCGGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGAACTCACCGAACTGTGCCGGGTGGTCGCCGAGTACGCGGCTACTACTGCCGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGCCCCTCGCCATGTCCTCCGGCCTCACCTACACCCCCGGCATGTACGCCGAGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCGCGCCGCCGCGCCACCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGCGGCGACGCCGGGGGAGCTGGACCGGATGCGGCGGCGCTGGTGGCGGACGGCATGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCGCCACGACGAAATCGCGGCCATGCGGGACCTGGCCGAÄGAAGCCATGGCCA 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGCGGCGTATCTGATCCCGCAGGGCACCGTCCGTATGCTCGCCGTCGGCTGGGGAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCACCTGGCGGTCGGTCGGGTACCTGGAC---CGGCTGGACCAGGGCATCGCGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGC 517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCA 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTCGCCGAGGTCCGCAGGGCGATCACCGGCTGGAACGGCCACGGCGACGACATCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTGACCCTCGAAGTCGTCGGCCAGGACGGGCTCTCGTACGCACCGGTCGACGACCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCCACAGGGACCTCGCCTGAGGGACCCGGACCACAGTGCCAAGGCGGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGG
                           1200
                                                                                                                                                  1114
                                                                                                                   1063
                                                                                                                                                                                                              1054
                                                                                                                                                                                                                                             948
                                                                                                                                                                                                                                                                                                         889
                                                                                                                                                                                                                                                                                                                                        934
                                                                                                                                                                                                                                                                                                                                                                     838
                                                                                                                                                                                                                                                                                                                                                                                                    874
                                                                                                                                                                                                                                                                                                                                                                                                                                   778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         235
```

8 Ş 밁 S

Ş

밁 S 밁 Ş 밁 Š 맑 S

밁 Ş 멼

610 598

538

421

361 376 301 358 241 298

```
. 8
                                                                      밁
                                                                                                 Ş
                                                                                                                                      밁
                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                 ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CUURENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 3783
LENGTH: 1728
TYPE: DNA
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; ORGANISM: Streptomyces avermitilis
FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(1728)
US-10-156-761-3783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
US-10-156-761-3783
; Sequence 3783, Application US/10156761
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 345; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: OMURA, SATOSHI APPLICANT: IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                      497
                                                                                                                                      422
                                                                                                                                                                    437
                                                                                                                                                                                                    362
                                                                                                                                                                                                                                  377
                                                                                                                                                                                                                                                                                                 359
                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                299
                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                   125 GG---GCCGGCGAGGACGCGGCCGGCCTCGTCCTCGCCCCGGCTTCGTCGACCCGCACA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCGCTCTTCCACGAGGCGATGGACGCGGGGGTGCGTGGGGGCCTGTCCACCACCCAGTCGT
                    GGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTTCGACCGGCGCCCTTCT
                                                                                          CGGTCATGCCGGACTTGCAGCGCGCCG------CCACCGACGAGGAAATCGCGGCCATGC 550
                                                            ACGTTATGGGCCCGGACGCGGTCGGCCGGCCCGCCGCGGGAGCAGCTGGAGCGGATGC
                                                                                                                                             GGGCCACGCCGGCGGCCGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCG 496
                                                                                                                          AGGGC---CGGATCGCCGTCAACGCGGGTTTCATGGTGGGGCATTGCGCCCTGCGCCGGT 478
                                                                                                                                                                                            CCTGGAGGAGGGCGCCCTGGAGCTGGCACACCTTCGGCGACTACCTGGACGCGCTGG
                                                                                                                                                                                                                       TGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGC 436
                                                                                                                                                                                                                                                        CCCAGGACGCGGACTACACCCGGCCGGATGATGTCCAAGGTGGAGGGCATGTCCCTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCACACCCGGGTCGACGTGTCGGGCCTGGTTGGTCGCCGGCTTGATCGACTCGGACA 238
                                                                                                                                                                                                                                                                                             CGCCCGCC-----
                                                                                                                                                                                                                                                                                                                      TCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACC
                                                                                                                                                                                                                                                                                                                                                                                   CCCACTACGACGCCCAGCTGTTCTGGGACCCCTACGCGACCCCGTCCCTCAACCACGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                   CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGACGTGGGGATACGGGACGGCCGTATCGCCGCCGTCGGCACGGTCACCGAGCCGGCCA 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IKEDA, HARUO
ISHIKAWA, JUN
HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SHIBA, TADAYOSHI
SAKAKI, YOSHIYUKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 118.4; DB 8;
Pred. No. 9e-10;
0; Mismatches 221;
                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54;
```

Gaps

4

Š

```
5
                                                                       밁
                                                                                                  Ş
                                                                                                                                  밁
                                                                                                                                                             Š
                                                                                                                                                                                           8
                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                           .₽
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: DNA
; ORGANISM: Actinosynnema pretiosum
PCT-US02-37547-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 5
PCT-US02-37547-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 12, Application PC/TUS0237547

GENERAL INFORMATION:

APPLICANT: Floss, Heinz
APPLICANT: Leistner, Eckard
TITLE OF INVENTION: Blosynthetic Gene Cluster for the Maytansinoid Antitumor Agent
FILE APPLICANT: UNASH-16712
CURRENT APPLICATION INDMER: PCT/US02/37547
CURRENT FILING DATE: 2002-11-21
NUMBER OF SEQ ID NOS: 57
SOFTWARE: Patentin version 3.0

SEQ ID NO 12
LENGTH: 3354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 6.6%;
Best Local Similarity 44.2%;
Matches 758; Conservative
                                                                                                                                  1994
                                                                                                                                                                                1874
                                                                                                                                                                                                                                                                                                                     1814
                                                                                                                                                                                                                                                                                                                                                                                                                                            1700
                                                                                                                                                                                                                                                                                                                                                                                1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1580 CCGCCGCCGACCACGCGCTCGCCGCCGACGACGTGCCCACCGCCGTCGCACGGCTCGCCG
                            656 GCCGGCCGCTGAGCGCGATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1520
                                                                                                                                                                                                                            476
                                                                                                                                                                                                                                                                                       416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176
                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCACCTCGGCCCACCCCACCCCCCCCCCCCCCCCGAGCCGCGTCGACCCGTGGT 2173
                                                          CGCTCACCGCCTCCCGCCGCCCACAACCCTCCACGCCTCCGCCCCCGCACACCTCCGCCC
                                                                               CGACCGGCGCCTTCTACCCGCCGCCGCCGCGCGCACCGACGAAGAGAATCATCGAGGTGT
                                                                                                                     CCCGCGAGCACCGCCGAGCTGCCCGACCTGGAGACCTGGCTCTCCCTCGCCTGCCCGC
                                                                                                                                                 AAATCGCGGCCATGCGGGACCTGGCCGAGGGAAGCCATGGCCAGCGGCGCCATCGGCATTT
                                                                                                                                                                                                              GCCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCCACCGACGAGG
                                                                                                                                                                                                                                                                                                        TCGCCCGCGCGCGCTGGCAGCTCAACCCGGCTGCCGCGCTGTGCCACCTCGACCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                               GCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCA 355
                                                                                                                                                                                                                                            CCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGG 475
                                                                                                                                                                                                                                                                                                                                ACCCGCCCCCCCTGGACCTGCTGGACGACGCGCTCTTACCGTTTCGAGCGCTTTCG 415
                                                                                                                                                                                                                                                                                                                                                                   GCCGCACGTCGCCCGAGGCCGC-----CGCCGTCGCCGGGCCCGCGCGCTCACCGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCGCCCGTCGCCGACCGGTGCGGGTGCGGGACCGGACGGCCGCCGCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCACCGCGGACGACGACCAACCGCGGGCCGTCCCCCGCGCGCACTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccececacaccceeercaacererceeccreerercececcceecrrearceacreec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCCGACCTGGGCGTGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGACCACCTCGTCACCGCCGGGCTGCCCGCGCCCGGGCCGTGGACGTGCTCGTCG 1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACCCACTCGGACGGCGAC 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 116; DB 1;
Pred. No. 2.1e-09;
0; Mismatches 935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 3354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                            2113
                                                                                                                                                                                   1993
                                                                                                                                                                                                                 535
                                                                                                                      2053
                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                        1873
                                                                                                                                                                                                                                                                                                                                                                    1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175
                                                                                                                                                                                                                                                                                                                                                                                                                               1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                             295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
```

```
뮍
                                                                                   Š
                                                                                                                 밁
                                                                                                                                          Ş
                                                                                                                                                                       밁
                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
3191 CCCTGGCCGTCACCGGCCTCACCAACCGGCAGAT 3224
                                                            3131
                 1724 AGCTGGGCCAGATCGCCCTGAGCTACGAGAAGCT 1757
                                                                                                       1604
                                                                                                                                                                                                  1544
                                                                                                                                                                       3011
                                                                                                                                                                                                                               2951
                                                                                                                                                                                                                                                         1484
                                                                                                                                                                                                                                                                                   2891
                                                                                                                                                                                                                                                                                                               1424
                                                                                                                                                                                                                                                                                                                                          2834
                                                                                                                                                                                                                                                                                                                                                                  1364
                                                                                                                                                                                                                                                                                                                                                                                               2774
                                                                                                                                                                                                                                                                                                                                                                                                              1304 CCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCT 1363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1244 GGAAGATGACCGGCCTGACCGCCGCGCGCGTTCGGCCTGGCCGGGCGGCCAGCTGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                         2714 TCCTGGCGTGCGGCGACCTCCTGCGCTCGTGGGGCCTCGACCTGCCCGGCCTCGCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2414 CCTTCGCCGCCGCCCCCCGGTGATCGCGCTGCGGCTCGGCGACCTCGCGGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2294 AACCCGCGCTGCTCGCCCTGCTAGCCCTGGTGCGCGCCGACCGCCGCCGACGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2234 CCGAGGCCGCGCACTACCTGCGCCACGCCCACCTCAGCCACACCTCCCCGTGGTCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  893 TGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       833 TGCCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 716 ACATCGTGGCCGC----GCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGG
                                                  CGGCCGACCCCGTCGAGCACGACACCAGCGGCCTCACCGGCTCCGAGCGCAAGGTCGCCG
                                                                            TGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCG 1723
                                                                                                                                                                                        CAACCCTGGACGCAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCG
                                                                                                                                 TCGGCGCCGCGCACCACGCCTCGGCGACCACCGCCGCGCCCGCGCCGTGCTGCGCAGGG
                                                                                                                                                                                                                    CCGCCGACGCCTGGAGCGCTGCGGTGACCGCTACGAGCTGGCCGCCACCCTCGCCTGCC
                                                                                                                                                                                                                                      CGCTGCGCGCTCGCCCGCTCAGCCCGCCGACCCGCCCGCACCTGCTCGCCGAGG
                                                                                                                                                                                                                                                                                            TCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGGG 1423
                                                                                                                                                                                                                                                                                                                                                                                     TGGTGTTC --- GACCAGCTCGCCACGACCGGCCGCACGGGCCGCCCCAGGGCCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCACGCGCGCCACCACCACCTCGCGTCCGGGCGGGACCACGCGGCGCTCGCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGACGGCCTGCCGCAC--GACGAGCGCCCCGCATCCGCGCTGTGGGGCAC----CTTCC 1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTAT 1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCT 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GECACGCCCGCGCGCGCTCGACGCCGTCCCCTCGCACGGCTGGGGCGCGTCCGTGGGCC 2533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGGTGCAAGCCCTTCCCCGAACT---GAGCGGGCGCGACCTGGATGAAGTCGCGGCCG 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCGCGAGGCCGAGCCTGGTCGGCGGGTTCGCGCTCGGGGACCAGCGCCGGGCCGCCC
                                                   3190
                                                                                                       3130
                                                                                                                                                              3070
                                                                                                                                                                                        1603
                                                                                                                                                                                                                                                                                                    1483
                                                                                                                                                                                                                     3010
                                                                                                                                                                                                                                                1543
                                                                                                                                                                                                                                                                          2950
                                                                                                                                                                                                                                                                                                                                                                                                                                           2773
                                                                                                                                                                                                                                                                                                                                2890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2233
```

```
Ş
                                                                                문
                                                                                                                                                                                                                                                      S
                                                                                                                                    Š
                                                                                                                                                                                         . 문
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밓
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; TYPE: DNA; Actinosynnema pretiosum
PCT-US02-37547-56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Paten
SEQ ID NO 56
LENGTH: 82746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 56, Application PC/TUS0237547
GENERAL INFORMATION:
APPLICANT: Floss, Heinz
APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: BIOSYNTHELIC Gene Clust TITLE OF INVENTION: Ansanitocin FILE REFERENCE: UNASH-06712 CURRENT APPLICATION NUMBER: PCT/US02/37547 CURRENT FILING DATE: 2002-11-21 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NOS: 57 NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF SEO ID NUMBER OF S
                                                                                73215
                                                                                                                                                                                                     73275
                                                                                                                                                                                                                                                                                                                    73335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73809
                                                                                                                                                                                                                                                                                                                                                                            . 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.6%;
Local Similarity 44.2%;
es 758; Conservation
TGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGC 832
                                                          TGCGCGAGGCCGCCAGCCTGGTCGGCGGGTTCGCGCTCGGGGACCAGCGCCGGGCCGCCG
                                                                                                                                                                               CGCGCACCTCGGCCCACCCCACCCCCCCCCCCCCCCCCGAGCCGCGTCGACCCGTGGT
                                                                                                                                                                                                                 ACATCGTGGCCGC---GCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGG
                                                                                                                                                                                                                                                                                               CGACCGGCGTTCTACCCGGCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                 CCCGCGAGCACGCCGAGCTGCCCGACCTGGAGACCTGGCTCTCCCTCGCCTGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGCCCGCGCGCGCTGGCAGCTCAACCCGGCTGCCGCGCTGTGCCACCTCGACCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCATTCAACGCTGCGCGCGCGCGCTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGACGCGCTCGCCGACCCCGACGCGCGCCCCCGCGGGGACGCCGCCGCGCTGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCCGCGACCACGCGCTCGCCGCCGACGACGTGCCCACCGCCGTCGCACGGCTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCCGCCCGCCCCCGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCACGTCGCCCGAGGCCGC-----CGCCGTCGCGGGGCCCGCGCGCTCACCGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACACCCACGACGACGACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCCACCGCGGACGACGACCGAACCGCGGGCCGTCCCCCCGCGCGCAGTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cceccacaccceeerceacererceeeccreereereeccceeccreeacreec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCCGACCTGGGCGTGCGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Leistner, Eckard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 116; DB 1; I
Pred. No. 2.1e-09;
0; Mismatches 935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gene Cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 82746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the Maytansinoid Antitumor Agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                             73156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
```

```
밁
                                                                                          ş
                                                                                                                        밁
                                                                                                                                                       Ş
                                                                                                                                                                                     밁
                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
72198 CCCTGGCCGTCACCGGCCTCACCGACCGGCAGAT 72165
                                                                                                                                                                                                                                                                                                                                                                                                                                  72615
                                                                                                                                                                                                                                                                              1484
                                                                                                                                                                                                                                                                                                                                           1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           72855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73095 AACCCGCGCTGCTCGCCCTGCTAGCCCTGGTGCGCGGCGGCGGCGGCGGCGGCGACGCCGACC 73036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73155 CCGAGGCCGCGCACTGCCGCCACCCCCACCTCAGCCACCTCCCCGTGGTCCGAGG 73096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         893
                            AGCTGGGCCAGATCGCCCTGAGCTACGAGAAGCT 1757
                                                                                                                                                                                                        CAACCCTGGACGCAAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCG
                                                       CGGCCGACCCCGTCGAGCACGACACCAGCGGCCTCACCGGCTCCGAGCGCAAGGTCGCCG
                                                                                  TGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCG
                                                                                                                 CCTGAGCCCGGCGCAGCCCTTACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCTCC
                                                                                                                                                                                                                                                                                                   CGCTGCGCGCTCGCCTCAGCCCGCCGACCCGCCGCACCTGCTCGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                            GGCGCACCGGGGCCGCGAGGCGTGGACCCGCCTGGGCAACCACGACCGCGCCGGCGGC
                                                                                                                                                                                                                                        CCGCCGACGCCTGGAGCGCTGCGGTGACCGCTACGAGCTGGCCGCCACCCTCGCCTGCC
                                                                                                                                                                                                                                                                                                                               TGGTGTTC---GACCAGCTCGCCACGACCGGCGCCGACGCGGCCGCCCCAGGGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGGTACTTCGCCGACCTGGTGGTGGTCGACCCGTGGCCGATACCGCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCTGGCGTGCGGCGACCTCCTGCGCTCGTGGGGCCTCGACCTGCCCGGCCCTCGCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAGATGACCGGCCTGACCGCCCCCCCCTCGGCCTGGCCGGGCGCGGGCAGCTGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACCGGCGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCACGTCACCGCGCCGTGCCGGACGCCCTCTTCGACGGCCCCGCCGCCCCGCACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGCGGCAAATCCAAGTACGACGTGGTGCCGGAGCTGCAGCCGGCGGCGCGCTCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGCCTGCGCCCGGCTGCTCGACGAGGCCCGCGCGCCCGGCGCCCACCTGGGTCGCCT 7297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCACGCGCGCCACCACCACCTCGCGTCCGGGCGGGACCACGCGGCGCTCGCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGACGGCCTGCCGCAC--GACGAGCGCCCGCATCCGCGCCTGTGGGGGCAC---CTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCACGCCCGCGCGCGCCGACGCCGTCCCCTCGCACGGCTGGGGCGCGCGTCCGTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTGGTGCAAGCCCTTCCCCGAACT---GAGCGGGCCGACCTGGATGAAGTCGCGGCCG 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTTCGCCGCCGCCTCGGTGATCGCGCTGCGGCTCGGCGACCTCGCGGGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCCGGCTCCACCATGCTCAAGCAGCGCGGTGCTGCTGCTGGCGGACGCACCATCATCA 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCCGCTGATCGAGGCCGCCATGGCGCCGCCAGGACGTCTCGCTGGACGCGTATCCCTACG 892
                                                       72199
                                                                                     1723
                                                                                                                                                                             72319
                                                                                                                                                                                                           1603
                                                                                                                                                                                                                                                                     1543
                                                                                                                                                                                                                                                                                                                                 1483
                                                                                                                                                                                                                                                                                                                                                                                            1423
                                                                                                                                                                                                                                        72379
                                                                                                                                                                                                                                                                                                                                                              72499
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1069
                                                                                                                                                                                                                                                                                                    72439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1129
                                                                                                                                                                                                                                                                                                                                                                                                                          72556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72916
```

RESULT 7
PCT-USO2-37547-4:
; Sequence 4, Application PC/TUSO237547
; GENERAL INFORMATION:
; APPLICANT: Floss, Heinz

```
; APPLICANT: Yu, Tin-Wein
; APPLICANT: Leistner, Eckard
; TITLE OF INVENTION: Biosynthetic Gene Cluster for
; TITLE OF INVENTION: Ansamitocin
; FILE REFERENCE: UMASH-06712
; CURRENT APPLICATION NUMBER: PCT/US02/37547
; CURRENT FILING DATE: 2002-11-21
; NUMBER OF SEQ ID NOS: 57
; SOFTWARE: Patentin version 3.0
; SEQ ID NO 4
; LENGTH: 997
; TYPE: DNA
; ORGANISM: Actinosynnema pretiosum
PCT-US02-37547-4

SCOTE SCOTE 95.4; DB
                                                                                            Ş
                                                                                                                            문
                                                                                                                                                         Ş
                                                                                                                                                                                           용
                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        д.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 474;
1194 GGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGAC 1253
                                                                                                                            4365
                                                                                                                                                                                           4313
                                                                                                                                        1074 GATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGA 1133
                                                                                                                                                                                                   4254 CGCGCTCACCCCCGACCGCGTGCGCCCGGGTCCTCGCCCCCAAGGCCACCGCCGCCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     4077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4017
                                                                                                                                                                                                                                                                                                                                                                                      4137
                                                                                                                                                                                                                                                             954 CTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGGGCGACCTGGATGAAGTCGCGGCCGAGCG 1013
                                                                                                                                                                                                                                                                                                                                    894 GGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGGACGCACCATCATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 714 GCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGAGCTGGACGTGCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       414 CGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGT
                                                                                                            CTCCGGCGTGCTCGGGGCGGGCGAGGGGCAACTACGCGGCGGCCAACGCCTACCTGGA
                                                                           CGGCCTGCCGCACGACGACGCCCCCCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCT 1193
                                                                                                                                                                                                                                                                                                                                                                     GCACCCGCTCACCGGCGTCGTGCACCTGGCCGCGCGCGCTCGACGACGCCACGATC---AC
                                                                                                                                                                                                                                                                                                                                                                                           GCCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGT 893
                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCT 833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCGTCACCGCCGCGGCGCGCGCCACCTGCTGCTGCTCAGCCGCCGGGGCCCCGACGC 4076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGAGGGCACCGTCCTGGTCACCGGCGCGCACCGGCGTGCTCGGCGCGGCCGTCGCCCCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTCACCGCGGAGGTTGCGCCGCGCGCCCCCGAGGGCGCCGCACCCCGTCCTGGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCGACCGGCGCTTCTACCCGCCCGCCGCCGCCGCCACCGAAGAGAGATCATCGAGGT 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACCTGATCACCGCGCTCGCCGGCCGGACCGGGAGCCCCAGCTCGCCGTGCGCGCGGGCCG 3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCAT 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCCAGGCCGAGGAGCCCGGCCGGATCGTCCTGGTGGACACCGACGGCTCCGGCCCCCGA 3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGAGGGCCCGGACGGCGACGTCCGCCGTGCACGGCCTCGTCCGCTC
                                                                                                                                                                          ----ACCTGCACGAGCTGACCTCCGACCTGGCGCTGTTCGCCCTGTTCTCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 95.4; DB 1;
Pred. No. 3.4e-06;
0; Mismatches 556;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for the Maytansinoid Antitumor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 9975;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                4484
                                                                                                                                                                            4364
                                                                                                               4424
                                                                                                                                                                                                          1073
                                                                                                                                                                                                                                                                                                                                     953
                                                                                                                                                                                                                                        4312
                                                                                                                                                                                                                                                                                                                                                                       4196
                                                                                                                                                                                                                                                                                                                                                                                                                                      4136
                                                                                                                                                                                                                                                                                                         4253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Agent
```

```
ş
                                                 밁
                                                                           Ş
                                                                                                                문
                                                                                                                                              Ş
                                                                                                                                                                               밁
                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                  닭
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 6189
LENGTH: 2538
                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; LOCATION: (1)..(2538)
US-10-156-761-6189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-156-761-6189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 568; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 6189, Application US/10156761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: ISHIKAWA, JŪN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAVOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Streptomyces avermitilis
FEATURE:
NAME/KEY: CDS
                                                                                                                1288
                                                                                                                                                                               1228
                                                                                                                                                                                                                                              1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: OMURA, SATOSHI
                                                                                                                                                                                                                                                                                                1108 TCCACCCACCCCGTCGCCCCGGAAGCCGTCGACGACACCGCCTCCGCCCTCCTCAACTTC 1167
                                                                               271
                                                                                                                                              211
                                                                                                                                                                                                               151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4722
                                                                                                                                                                                                                                                              1434 GCAGGCGTTCACCGGCCAGCATGCC 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1374 TACCGAGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCCGGTCTGGCAAGA 1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4605 CGCCGGAC---CGGCGTTCGTCGCGGCGGCCTGGCGGGGACGGCCACCGGGCAGGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1314
                                                                                                                                                                                                                                                                                                                               31 TCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGACCCTCATC 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCTGGCGCCGCTGGCGCACGCCAACCCCGCCCGCCCCTGGACCTGCTGGACGA---A
                                 GCCGACTCCTGGCTGCGCACGACGGCGTCGACACCCTGACCCCGGACATCACCACGGCC
                                                                                                ACCCTCGCCGACTTCATCGACTCCCTCGCCGCCGCCACCGAACGCGACGTCCACGCCTGG 1347
                                                      GACATGACGCCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGGGGCATC
                                                                                                                                GTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGC
                                                                                                                                                                                               GCCATCGGCGATCTGTCGGACGCCGCCCCCCCACACCCGGGTCGACGTGTCGGGCCTGGTG
                                                                                                                                                                 GAGAAGGACTTCCTCGCCGGCATCAACACCCACTTCACCCGCCACAAGTTCGGCAACGCC
                                                                                                                                                                                                                                  GACGGCATCTCCTACGCCAAGGGCGCCTCCGCCCTGCGCCCAACTCGTCGCCTGGGCTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCACCCCGCCGACCTGCTCGCC 4746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGGTGCTGCGGACGTCGTGCGGGGCGGCCGGCCGCCAGCCGGCGGCGGACCCGC 4721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCC 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCGTCCGGGGTCCGCCCCTGACCGAGGCCGAGGGCCTCGCCCTGTTCGACGCCGCCCT - 4604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCCTGACCGCCGCGCTTCGGCCTGGCCGGGCAGCTGCAGGCCGGGTACTT 1313
                                                                                                                                                                                                                                                                                                                                                                           Conservative.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HARUO
                                                                                                                                                                                                                                                                                                                                                                                         5.28;
                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                        Score 91; DB 8;
Pred. No. 1.6e-05;
                                                                                                                                                                                                                                                                                                                                                                        730;
                                                                                                                                                                                                                                                                                                                                                                                                    Length 2538;
                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                  330
                                                                                                                                   270
                                                                                                                                                                 1287
                                                                                                                                                                                                   210
                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                  150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4661
                                                                                                                                                                                                                                                                                                                                                                 u
```

```
Page
```

for the Maytansinoid Antitumor;

```
RESULT 9
PCT-US02-37547-3
                                                       밁
                                                                            S
                                                                                                      밁
                                                                                                                            Ş
                                                                                                                                                      문
                                                                                                                                                                            Ş
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                      2368
                                                                            1282
                                                                                                     2308
                                                                                                                                    2248 AACTACCTGTTCACCGCCACCGCCAGGGCTTCTGGCAACCGAACAGGCCGACCTCGTA
                                                                                                                                                                                                                                                     2128
                                                                                                                                                                                                                                                                                                      2068
                                                                                                                                                                                                                                                                                                                                                     2008
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1888
                                                                                                                                                                                                                                                                                                                                                                                                     1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1768. GCCCGCGCACCTCCCCGCACGAGACGGACCTCGCCTCGTCCAGGGCGTCCTGGCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1708 AACGCCTGCGCAACGCCGTACGCGACGGCCATCTCCCGCCCACCGCCTACCTGCAGACC
                                                                                                                                                                                                                                                                                                                              985
                                                                                                                                                                                                                                                                                                                                                                                                                              865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       685 TACGCCACCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCGGGGGGAAAACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        508 GACTTGCAGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTTGGCCGAGGAA
                                     GCCATCGCCGCCGCGCGGGCCGCTGGGCCTTCCCCGCCCACGCCGT 2414
                                                  GCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGT 1328
                                                                                    CGCGCCTACGTCGAGCGGTACTGGACCGACGCGGTCGCCGTCGCCGCCGCCGCGCGCCCC
                                                                                                         TTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTG 1281
                                                                                                                                                          CCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTG
                                                                                                                                                                                    CCCGACCCGAGTCCAAGCGACGGGCCTGGGAAGAGATGTTCACCACCGACCACCTCTCC
                                                                                                                                                                                                          GCGTTCGGCCCGACCATG----ATCGGCTCCGACGGCCTGCCGCACGACGACGACGCCCCCCAT
                                                                                                                                                                                                                                   CTCGTCCAGGACCCCAGCGCCAGCGCCAGGAAGGCGCCGCCGCTGCCGGGCCGCCCTG
                                                                                                                                                                                                                                                          CTGCAGCCGGCCGGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                     GACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGC
                                                                                                                                                                                                                                                                                   CGCATCCTCGGCCGCCTCGCCGTCCTCGGCGCCATCGACGACGACGTCATCGAGGCCGAA
                                                                                                                                                                                                                                                                                                      CGCGACCTGGATGAAGTCGCGGGCGAGCGCGGCGAAATCCAAGTACGACGTGGTGCCCGAG 1044
                                                                                                                                                                                                                                                                                                                                    AGCTGGCTCTCCGAAGGCACCGTCCCCGGGCGCCCCGAACTCGACCCCGAACTGCGCTGG
                                                                                                                                                                                                                                                                                                                                                            GTGCTGCTGGCCGGACGCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGG
                                                                                                                                                                                                                                                                                                                                                                                    CTGCGCCTGACCGCGTACGCCACCTCATCGACGTCGCCGGCCCACCCCGACACCCTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCTCACCGACCTGTGCCGCGACCTGATCCGCCGCACCGAGGACGGCTCCCAGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCATCGGCCGCGAGCTGGACGTGCGTGGTGATCTCGCACCACAAGGTCATGGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --- CGCCACCACCGAAGAGATCATCGAGGTGTGCCGGCGCGCGTGAGCGCGCATGGCGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCCTCCTCAACGACGCCGACCTCACCTACGCCAAGGTCCGCTTCGACCCCGAATCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAACTCGACATCCCCCAGGACCCCGCCGAACCACAGCCCCTCGGCAAGCGCCCCGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGACGTTGCGGGCCACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2367
                                                                                                                                                                                                          1161
                                                                                                                                                             1221
                                                                                                                                                                                                                                    2187
                                                                                                                                                                                                                                                            1104
                                                                                                                                                                                                                                                                                                                                    2067
                                                                                                                                                                                                                                                                                                                                                                                                                                      1947
                                                                                                                                                                                                                                                                                                                                                             984
                                                                                                                                                                                                                                                                                                                                                                                    2007
                                                                                                                                                                                                                                                                                                                                                                                                             924
                                                                                                                                                                                                                                                                                                                                                                                                                                                             864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          447
```

Sequence 3, Application PC/TUS0237547 GENERAL INFORMATION: APPLICANT: Floss, Heinz

Ĉ

```
S
                                                            밁
                                                                                    Š
                                                                                                                  8
                                                                                                                                           Ş
                                                                                                                                                                         밁
                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; APPLICANT: Yu, Tin-Wein
; APPLICANT: Leistner, Eckard
; TITLE OF INVENTION: Biosynthetic Gene Cluster for
; TITLE OF INVENTION: Ansamitocin
; TITLE OF INVENTION: Ansamitocin
; FILE REFERENCE: UWASH-06712
; CURRENT APPLICATION NUMBER: PCT/US02/37547
; CURRENT EILING DATE: 2002-11-21
; NUMBER OF SEQ ID NOS: 57
; NUMBER OF SEQ ID NOS: 57
; SEG ID NO 3
; SEQ ID NO 3
; LENGTH: 4770
; TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PCT-US02-37547-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 562;
888 CTACGTGGCCGGGTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGGACGCACCAT 947
                                                                                                                                                                        3801
                                                                                                                                                                                                                             3741
                                                                                                                                                                                                                                                                                  3681
                                                                                                                                                                                                                                                                                                                                       3621
                                                                                                                                                                                                                                                                                                                                                                                              3561
                                                                                                                                                                                                                                                                                                                                                                                                                                                    3501
                                                                                                                                                                                                                                                       648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3441 CACCGGCGGAACCGGCGGCGTCGCCGCGCACGTGGCCCGCCGCCGCCGCCCTCGGCGC 3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: Actinosynnema pretiosum
                                                                                                                                                                                                                                                                                                             588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3324
                                                                                                                                                                                                                                                                                                                                                                 531
                                                                                                                                                                                                                                                                                                                                                                                                                          471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3384 GC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171 coccecceccacaccecesercaacerereceseccreerecececcesecrearcaa. 230
                                        GCACGGCCGCCTCGCCACCTCCGTCGCCTGGGGCGCCTGGGACGGCGGCGCCATGTCCAG
                                                                  GACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCGCAGGACGTCTCGCTGGACGCGTATCC 887
                                                                                               GCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGA 827
                                                                                                                                                     GCGCCCGCTCGACGCGTTCGTCCTGTTCTCCTCCAACGCGGCGTGTGGGGCCAGCGGCGG
                                                                                                                                                                               AGGCGACCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCCATCGGCCGCGAGCTGGACGT
                                                                                                                                                                                                         CGAGGAAATCGCGGCCATGCGG---GACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCAT 587
                                                                                                                                                                                                                                   CGAGGTGTGCCGGCTGAGCGCGCATGGCGGCATCTACGCCACCACATGCGCGACGA 707
                                                                                                                                                                                                                                                               CGTGCACGCGGGGGGGGGCCAACGCCCAGACCCCCGTCGCCGACACCACCCCCGAGGAGCA 3740
                                                                                                                                                                                                                                                                                   CGGCATTTCGACCGGCGCTTCTACCCGCCGCCGCCGCCGCCGCCACCGAAGAGATCAT 647
                                                                                                                                                                                                                                                                                                                      CGCCGCGCTCGCCCTGCTGACCGGCCTGGAGCGCGCGGGGGAGCAGGTCACCGCCGT
                                                                                                                                                                                                                                                                                                                                                                           CGCCGACCTGGAGGCGCTGGGCGCCGCGTCACCACCGCCGCCTGCGACGTCGCCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                    CGACCACCTCGTCCTCACCAGCCGCCGCGCGCCCTCGGCCCCCGGGGGCGCCCCGCGCTCGC 3560
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCAACCCGCCCGCCCCCCCGCACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCG 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCA 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTC 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCGCCGACCGCCCAGCGCCGCGGGCTCGCCGCCGTCCTCGCCGGACCCGGCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCGAACCGCAGGCCCCGGGCCCCCGTGGACCCCGGGGCACGGTCCTGAT 3440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 90.2; DB 1;
Pred. No. 2.2e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches 743;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 4770;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                          3980
                                                                                                 3920
                                                                                                                                                      3860
                                                                                                                                                                                767
                                                                                                                                                                                                                                                                                                                                                                             3620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3323
```

```
Š
                                                                                                            밁
                                                      밁
                                                                               Š
                                                                                                                                       δÃ
                                                                                                                                                                     В
                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Floss, Heinz
APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
TITLE OF INVENTION: Biosynthetic Gene Cluste:
TITLE OF INVENTION: Ansamitocin
FILE REFERENCE: UWASH-06712
CURRENT APPLICATION NUMBER: PCT/US02/37547
CURRENT FILING DATE: 2002-11-21
NUMBER OF SEQ ID NOS: 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCT-US02-37547-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 460; Conser
                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                      10998
                                                                                                                                                                       10878
                                                                                                                                                                                                                                                                                     TYPE: DNA
ORGANISM: Actinosynnema pretiosum
-US02-37547-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   equence 1, Application PC/TUS0237547
ENERAL INFORMATION:
                                                                                                               10938
504 GCCGGACTTGCAGCGCCGCCACCGACGAGGAAATCGCGGGCCATGCGGGACCTGCCCGA
                                                                                                                                                                                                                                                                                                                               ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4461 CGCGCTCGCCGAGCACCTGGCCGAGCACCTCGCCGCCGAGGGACAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            948
                                                                                                                                                                                      GCCGGCGGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCCGGTCAT
                                                                                                 CGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCAC 443
                                                                                                                                                         CGACACCCGCTACGCGAGGCCGGCCTGTTCGCCGTGCAGGTCGCGCTGGTGCGCCTGCT 10937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCGCCGCGACCGGCGAAGCTCACGCCCACCGCGTCTTCGACCACCCCACCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTACTTCGCCGACCTGGTGTTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTGGCCTTCCGCGACCTCGGCGTCGACTCGCCGCCGTCGAGCTGCGCAACCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACACCCTACCGAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGC 1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAA 1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGACGTGCGCTGGGAGGCGTTCGCCGCCCGGTTCACCGCCCTGCGCAGCCCCCTGCT 4160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTGGCGGTGTCCGCGCTCGACGCCGTCGCCGCGACGAGAGCACCACCGTCGTGAC 4100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTGCGCGCACGCCGCCGCCGCGCTCGGCCACCCCGGACCCGAGTCGGTGCCCGCCGA. 4340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGGCGGGCGAGCTGGCGCGCGCGCGCGGAGCGGCTGCGCAGGCTCACCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCCGACGCCTGCCGCACGACGAGGGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCGACCTGCCCGAGGCCCGCCCGAACCGGTCGCCGCCCACCGCCGAGCCCGACCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCACCCCGGACATCGCCGACCCAGCTCGCCCAGGCTGGCCTGCGCCTGATGCCCCCGGA 4040
                                                                                                                                                                                                                                                                                                                               14055
                                                                                                                                                                                                                                                                                                                                                        version 3.0
                                                                                                                                                                                                                                       5.0%;
                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                     Score 88.4; DB 1;
Pred. No. 4.1e-05;
0; Mismatches 561;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gene Cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                  the Maytansinoid Antitumor Agent
                                                                                                                                                                                                                                                Length 14055;
                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                     15;
                                                                                                                                                                                                                 Gaps
                563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1127
                                                                                                                                                                                                                  2
```

Sequence 2, Application GENERAL INFORMATION:

PC/TUS0237547

APPLICANT: Floss, Heinz APPLICANT: Yu, Tin-Wein

APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
TITLE OF INVENTION: Biosynthetic
TITLE OF INVENTION: Ansamitocin
FILE REFERENCE: UWASH-06712

Gene Cluster

for the Maytansinoid Antitumor

Agent

CURRENT APPLICATION NUMBER: PCT/US02/37547 CURRENT FILING DATE: 2002-11-21 NUMBER OF SEQ ID NOS: 57 SOFTWARE: Patentin version 3.0

```
밁
                                                                            Š
                                                                                                          밁
                                                                                                                                  Ş
                                                                                                                                                               밁
                                                                                                                                                                                                                                              Ş
RESULT 11
PCT-US02-37547-2
                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                     11889
                                                                                                                                                             11769
                                                                                                                                                                                                                   11709
                                                                                                                                                                                                                                                                         11649
                                                                                                                                                                                                                                                                                                                           11589
                                                                                                                                  1278
                                                                                                                                                                                                                                                                                                                                                                                                                                    11469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1218
                                                                                                                                                                                                                                              1158
                                                                                                                                                                                                                                                                                                                                                                               11529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11058 CGCCCTCATGCGCGAGCTGCCCCCCGGCGTGATGGTCGCGGTCCGCGGGGGGGAGGACGA 11117
                                                                                                                                                                                                                                                                                                 1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11178
                                                                                                                                                                                                                                                                                                                                                                                                         978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            804 GCCCAATTTCGGCCGCTCGCGCGAGACGC----TGCCGCTGATCGAGGCCGCCATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 744 CCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACGAGGTCATGGGCCA
                                                                 GGCCACGGTGGCCGAT 1353
                                                                                                                        CCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCC 1337
                                                                                                                                                   GATCCCCGGCTCGGACACCGCCGCGTTCACCGGCCGCCGCCACCGGCGCCCACCCGTG
                                                                                                                                                                    CGCCCCCCCACCACCGACGCCCCCCCCCGCTGGAGCACCCGCTGCTCACCGGGGAGCTGGA
                                                                                                GCTGGCCGACCACCGGCTGCTCGACGCGGTCGTCGTGCCCGGCACGGCCCTGCTGGACCT
                                                 GGTGCGGGCGGCCGGT 11904
                                                                                                                                                                                                                                 GCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGG
                                                                                                                                                                                                                                                              CGGCCGGACCACCTGCCCACCTACCCGTTCCAGCGCCGCCGCTTCTGGCTCGACCC
                                                                                                                                                                                                                                                                                      CATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCC
                                                                                                                                                                                                                                                                                                                 CGGCGCGCTGCACGCGAGGGGGGGCGCGTCGACTTCGCCCGGCTGGTGGCCGACGCGGG
                                                                                                                                                                                                                                                                                                                                          GCCCGAGCTGCAGCCGGCCGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCG
                                                                                                                                                                                                                                                                                                                                                                     GCTCTGCGCCCCCTGCTGCACCGCGACCGGGACGAGGACCACTCCCCTGATCACCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                             GAGCGGGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                       GGTCGGCCCCGGTGGTGGGCTGGCCGCCGCCGCGCAGGAGTGCCTGGACGGCCACGACGT 11528
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGACCGCGTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCCGCGTTCGCCGACGTGCTGGCGCGCCTGGACTTCCGGCCGCCGCGGCGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCCACGCGCCTGCGGGTCGCCCACGCCTTCCACTCGGCCGCCGTCGACGCGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGCGCGCGCGCTGGTCGACGGGGTGGAGCTGGCCGCCGTCAACGGCCCCCCGCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11828
                                                                                                                                                                                                                                                                                         1157
                                                                                                                                                                                                                                                                                                                                            1097
                                                                                                                                                                                                                                                                                                                                                                                                1037
                                                                                                                                                                                                           11768
                                                                                                                                                                                                                                     1217
                                                                                                                                                                                                                                                                                                                  11648
                                                                                                                                                                                                                                                               11708
                                                                                                                                                                                                                                                                                                                                                                       11588
                                                                                                                                                                                                                                                                                                                                                                                                                                                     977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11177
```

```
Ş
                   밁
                                                                          밁
                                                                                                   Ş
                                                                                                                               문
                                                                                                                                                        S
                                                                                                                                                                                        용
                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; SEQ ID NO 2
; LENGTH: 9222
; TYPE: DNA
; ORGANISM: Actinosynnema pretiosum
PCT-US02-37547-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 4.9%;
Best Local Similarity 43:8%;
Matches 614; Conservative
7942 GCGCCTCGGGGCGGCGGCGGCGACCGTGCTGGAGGTGGGGCCGACCGCCTCGGCCGAG 8001
                          7882 TTCTGGCCCGCGCGCAGGCGCCCGGCGCGTGGTGCGAGGTCCGCCTGGAGCGGTTGCCC
                                                                                                                                                          1102
                                                                                                                                                                                                                                             7702
                                                                                                                                                                                                 1042 GAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATC
                                                                                                                                                                                                                                                                                                   7645
                                                                                                                                                                                                                                                                                                                                                           7585
                                                                                                                                                                                                                                                                                                                                                                                                                  7525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7405
                                                                                                                                                                                                                                                                        982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7285 GTCGCGCCGCTGCTGGCGGGGGGCTTGGCGCCGCCGCCGTCAACGGGCCGGGCGCGGTC 7344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7225
                                                                                                                                                                                                                                                                                                                               922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7165
                                                                                                                                                                                                                                                                                                                                                                                      862
                                                                                                                                                                                                                                                                                                                                                                                                                            802 CAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742 TTCCGCATCGGCCGCGAGCTGGACCTGCGCGTGGTGATCTCGCACCACAAGGTCATGGGC 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          684 CTACG---CCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAAACC 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       628 GCCACCACCGAAGAGATCATCGAGGTGTGCCG----GCCGCTGAGCGCGCATGGCGGCAT 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7045 ACCGTCCACGCCCAGCCCGCGCTGTTCGCCCTGGAGGTCGCCGCCTGGCGCGCTGCTGGAG 7104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          508 GACTTGCAGCGCGCCCACCGACGAGGAAATCGCGGCCATGCGGGGACCTGGCCGAGGAA 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            388 GGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCG 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCC
                                                                                                                                        CTGGCGTTCGGCCCGACCATGATCG--GCTCCGACGGCCTGCCGCACGACGACGACGCCCGC
                                                                                                                                                                                                                           GAGCAGGTCGCGCGGGGGCCGCGGTGGCGCGCGGGCTGGTCGACGGGGACGAGGTGGTC
                                                                                                               CTGCTGGGCGGGCCGGGGCGGTCGTCGACCTGCCCACCTACCCGTTCCAGCGCACCAGG
                                                                                                                                                                    GGGCTGCTCCCGGGATCGGCGACCTGTTCGCGTCCGGGGCCCCGGTCGACTGGACCGCG
                                                                                                                                                                                                                                                      GGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCC
                                                                                                                                                                                                                                                                                  GGCGTGACGCGG---GTGCTGGAGGTGGGGCCCGGCGGCGCCTGGCCCCTGGTGCGC
                                                                                                                                                                                                                                                                                                          CGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGGAACTGAGC
                                                                                                                                                                                                                                                                                                                                         GCTCGGCAGGCAGGGAGGCCGTCCGGTTCGGCGACGGCGTCGCCCGGCTGGGCGAGCTG
                                                                                                                                                                                                                                                                                                                                                                    CAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                  CTGTCCACGCTCACCGGCGCGCCCCGCCGACGTCGAGCTGCTCGCCGACCCGGACTACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGGACCAGGGCGCTGCGGGTGAGCCACGCCTTCCACTCCGCGCACCTGGACGGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCTGTCCGGTGACGGGGACGCGGTCGAGCGGGCCGCCGAGTGCGCCGGGCGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACGTCGCGGGCGCTGTCGGAGGCGGACGCCTGCGCGCTCGTCGCGGCCAGGGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   eccaracacegecccegececegecearecratecroscererececeaecaaccaageaecae 7284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 85.8; DB 1; Length 9222;
Pred. No. 0.0001;
0; Mismatches 772; Indels 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15;
                                                                                    1219
                                                                                                               7881
                                                                                                                                           1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                      7821
                                                                                                                                                                                                 1101
                                                                                                                                                                                                                             7761
                                                                                                                                                                                                                                                        1041
                                                                                                                                                                                                                                                                                  7701
                                                                                                                                                                                                                                                                                                                                         7644
                                                                                                                                                                                                                                                                                                                                                                                                   7584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7464
                                                                                                                                                                                                                                                                                                                                                                     921
                                                                                                                                                                                                                                                                                                                                                                                                                              198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
```

```
FILE REFERENCE: 3002-11US
CURRENT APPLICATION NUMBER: US/10/329,079
CURRENT FILING DATE: 2002-12-24
NUMBER OF SEQ ID NOS: 66
SOFTWARE: Patentin version 3.0
SEQ ID NO 12
LENGTH: 15738
TYPE: DNA
ORGANISM: Streptomyces fradiae
US-10-329-079-12
                       몽
                                                 Š
                                                                                     밁
                                                                                                                     ğ
                                                                                                                                                         В
                                                                                                                                                                                       ş
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-329-079-12
; Sequence 12, Application US/10329079
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                            Query Match 4.7%; Score 82.6; DB 9; Best Local Similarity 43.1%; Pred. No. 0.00033; Matches 580; Conservative 0; Mismatches 749;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: ZAZOPOULOS, Emmanuel
APPLICANT: STAFFA, Alfredo
TITLE OF INVENTION: GENES AND PROTEINS INVOLVED IN THE BIOSYNTHESIS OF LIPOPEP
FILE REFERENCE: 3002-11US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: FARNET, Chris
1354 CTGGAGGAGTTCGCCGCCGAGCCGCAGCCGACGAGCCCGCGAGCCCGAGCCCGCGGCC 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                       1234
                                                                                                                                                                                                     11.74 CCCGACGGCCCCGGGACGGCATCGCCGGCACCGTCGAGTACTCCACCGACGTCCTCGAC 1233
                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8422 GACGCGGGCCTGGCGCTGGCC 8442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8362 CTGGTGGCCGCGCTGGACGACCACCGCCCGGACTGGGTCGTGCTCGCCGTCGCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1696 ATCGCGGTCTCGACCCTGTCC 1716
                                                                                                                                                                                                                            55 CCCTTCGACCTGCTGCTCGCGGGCGCGCACCCTCATCGACGGCAGCAACACACCCCGGGGCGG 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8122 GCGGACGTGGACGACCGGCGTCGGTGGCGCTGCTGCCGCGCTGCACGGCTGCGGC 8181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1396 CATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGCAT 1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1276
                                                                                                                                                                   CGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCC 174
                                CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAG 294
                                                                 GCCCCCGAGGCGCGCCTCCTCGATCGACCTGCTCTCCGCCGAGGAACGGCGCCGCGTG 1353
                                                                                                                                   GCCGCCACCGTCCGCGGGCTCGGGGAACGCCTCGTCCGCCTGCTGGAGGCCGGCACCGCC
                                                                                                 GCGGCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCG 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGCGCGCCGAGCGCAAGGCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGCGGCCTGCGGGTGCGCGAACCGGTCGTGCTGCCCGCCGACTCGGGCCGGGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGACCGGCGCCCCCTCGGGGCCGGTGCTGGTGGTCGGGGAGGCCGCGCGGGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGAACGGGGGGGGGTGCCGCCCCTCCCAACCCTGGACGCAAACCGCTACATGGCCCCT 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGCCGCGTGCTCGCACGCACGGCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGC 1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGGACGGCGCTGGCGGCTGGTGCGCTGCCGGACCGCGGACGTCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCCGCCGGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCTGGCCGGGCGCGGGAGCTGCAGCCGGGTACTTCGCCGACCTGGTGTTCTTCGAC
                                                                                                                                                                                                                                                                                                            Length 15738;
                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                           18;
                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                     1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1335
```

= =

```
1360
                                                                                                                      2371
                                                                                                                                                                                                                                  1180
                                                                                                                                                                                                                                                                        2251
                                                                                                                                                                                                                                                                                                         1120
                                                                                                                                                                                                                                                                                                                                               2191
                                                                                                                                                                                                                                                                                                                                                                    1060 GCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2074
                                                                                                                                                                                                                                                                                                                                                                                                          2131 CCGCCGGGCGTGGTGGCCTACTTCCGCGACCGCCGCATCGACTACGTCGACCTCACCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                             2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1714 GTCGCCCCCTGCTCGTCCTCGCCGAGCGGCCACCGAGGCCGCCGTCGCCGACCTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1474 GCCCCGGCCGTCGCCGGTCCGGTCGCCCTCACCTTCGCGGAGGCCGACGCCCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1414 GACGAGGGCTGGAGGCCGTGTGCGACACCTTCGCCCGCCAGGCGGCGGCCACCCCCGAG 1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      415
                                                                 CAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCC
                                                                                                      GCCCCCGCGTGACCGCGATGAACACCTACGGTCCCACCGAGACCGCCGTCGACGCCGTG
                                                                                                                                                                                                                  TTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGGCCTGTTCCCGCTGGAGACGGCG
                                                                                                                                                                                                                                                                                         ATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCCGCATCCGCGCCTGTGGGGCACC
ACCTTCGAACACCCTACCGAGCGCGCC 1386
                               GCCTACGTCCTCGACGCGGGACTGCGGCCGGCCCGCCCGGCGTGCTGGGGCGAGCTGTAC
                                                                                                                                GTATGGAAGATGACCGGCCTGACCGCCGCGCTTCGGCCTGGCCCGGGCGCGGCAGCTG
                                                                                                                                                                                                                                                      ACCTACTTCCGCAGCCTGCTCGACGCCGGACTGCTGGAGGAAGGCTTCCCCTGCCCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCGCGATGGTCGCCGGCCACGAAC---TGCACATGATCGACGAGGACCTGCGGTTCGAC 2130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAA 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCCCGGCCGCCCCACGTCTCCTCCTTCTCCTTCGACGCCTCGTGGGACCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGA 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGCGGCTGCTCCAGGCGCACCGCCGGGTCACCTTCTCCCGCATCCGTCCCTCCGCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCACACCTCGGGTTCCACCGGCAGGCCCAAGGGGGTCACGGTGGACCACCGGGGCCTG 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCCGGTCACCGACGCCACCGCACCGCGCCCTCCTGCCGGGCACGCCGACGCCTACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCCGGTCCTCGTCCTGGACGACCCGAGCACCGAGGCCGCGATCGACGCCCTGGACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGTGTGCCGGCCGCTGAGCGCGATGGCGGCATCTACGCCCACCACATGCGCGACGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCATTTCGACCGGCGCCTTCTACCCGCCCCGCGCGCCGCGCCACCAACAAGAGATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCCACGTACCGCTGGACCCACGCTCCCCGCACGAGCGGCTGGCCGCCGTCGAACGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATC 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCTGGACCGCAACGCCCTGTGGCCGACGACCGTGCTGGCGGCGCTGCTGCCAGCGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCCGCCTGGCCGGCTGCTGATCTCCCGGGGGGGGCGCCCGGAGGTCCGCGTCGCCGTC 1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCC-----GACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGTCACCACGGTGGTCACGGGCAATTGCGGCCATCAGCCTGGCGCGCTGGCGCACGCC 354
                               2490
                                                                    1359
                                                                                                      2430
                                                                                                                                           1299
                                                                                                                                                                                                                                                                                                                                                                      1119
                                                                                                                                                                                                                  1239
                                                                                                                                                                                                                                                        2310
                                                                                                                                                                                                                                                                                             1179
                                                                                                                                                                                                                                                                                                                                   2250
                                                                                                                                                                                                                                                                                                                                                                                                            2190
                                                                                                                                                                                                                                                                                                                                                                                                                                               1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       468
```

S B

 8 8

```
Ş
                                                            밁
                                                                                        ğ
                                                                                                                            밁
                                                                                                                                                        S
                                                                                                                                                                                            밁
                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Streptomyces fradiae US-10-329-079-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>Б</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-329-079-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/329,079
CURRENT FILING DATE: 2002-12-24
NUMBER OF SEQ ID NOS: 66
SOFTWARE: Patentin version 3.0
SEQ ID NO 6
LENGTH: 37360
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 580; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6, Application US/10329079
GENERAL INFORMATION:
APPLICANT: FARNET, Chris
APPLICANT: ZAZOPOULOS, Emmanuel
APPLICANT: STAFFA, Alfredo
TITLE OF INVENTION: GENES AND PROTEINS INVOLVED IN THE BIOSYNTHESIS OF LIPOPEPTI
FILE REFERENCE: 3002-11US
                                                            15990
                                                                                                                                                                                15870 GTCCACGTACCGCTGGACCCACGCTCCCCGCACGAGCGGCTGGCCGCCGTCGAACGCGAC
                                                                                                                            15930
                                                                                                                                                                                                                                                15810 TGCCTGGACCGCAACGCCCTGTGGCCGACGACCGTGCTGGCCGTGCTGCCAGCGGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   15630 GACGAGGGCTGGAGGCCGTGTGCGACACCTTCGCCCGCCAGGCGGCGGCCACCCCCGAG 15689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 15510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15390 CCCGACGGCCGGCCGGCATCGCCGGCACCGTCGAGTACTCCACCGACGTCCTCGAC 15449
                                                                                                                                                                                                                                                                                                                                                                                           15690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 709
                                                                                                                                                                                                                529 GACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                355 AACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2491 CTCGCCGGACCCGGAGTCGCCCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115 CGCGCCGACCTGGGCGTGCGGGGGGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCC 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGAGCACATCGTGGCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTG 768
                                                GCCCCGGTCCTCGTCCTGGACGACCCGAGCACCGAGGCCGATCGACGCCCTGGACCCG 1604
                                                                               GGCATTICGACCGGCGCCTTCTACCCGGCGCGCGCGCGCGCGCGCACGAAGAGATCATC
                                                                                                                  GTCGCCCCCCTGCTCGTCGCCGAGCGCGCCACCGAGGCCGCCGTCGCCGACCTCGCC
                                                                                                                                                                                                                                                                       TCCCGCCTGGCCCGGCTGCTGATCTCCCGGGGGCGCCGGCCCCGAGGTCCGCGTCGCCGTC
                                                                                                                                                                                                                                                                                                                                                GCC-----GACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGT 468
                                                                                                                                                                                                                                                                                                                                                                                 GCCCCGGCCGTCGGCGGTCGGGTCGCCCTCACCTTCGCGGAGGCCGACGCCCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCGCACACCCGGGTCGACGTGTCGGCCTGGTGGTCGGCCCGGCCTTCATCGACTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGAGGAGTTCGCCGCCGAGCCGCAGCCGACGAGCCCGCAGCCGCGAGCCCGCGCGCCC 15629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCCCGAGGCGCCGCTCTCGATCGACCTGCTCTCCGCCGAGGAACGGCGCGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 82.6; DB 9; Length 37360;
Pred. No. 0.00033;
0; Mismatches 749; Indels 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                  15989
                                                                                                                                                                                  15929
                                                                                                                                                                                                                 588
                                                                                                                                                                                                                                                    15869
                                                                                                                                                                                                                                                                                                                  15809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ü
```

```
밁
                                             SEQ ID NO 6160
LENGTH: 1371
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                           US-10-156-761-6160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                      Sequence 6160, Application US/10156761 GENERAL INFORMATION:
                                                                                                  PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                         FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
                                                                                        NUMBER OF SEQ ID NOS: 15109
                    ORGANISM: Streptomyces avermitilis
             FEATURE:
                                                                                                                                                                                                                                 TITLE OF I
NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    16707 CTCGCCGGACCCGGAGTCGCCCGCGGC 16733
                                                                                                                                                                                                                                                                                                                                         PPLICANT: OMURA, SATOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16347 CCGCCGGGCGTGGTGGCCTACTTCCGCGACCGCGCATCGACTACGTCGACCTCACCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16230 GGCCCCGGCCGCCCCCCCCCCCCCCTCCTTCTCCTTCGACGCCTCGTGGGACCCGCTG 16289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16110 ATCCACACCTCGGGTTCCACCGGCAGGCCCAAGGGGGGTCACGGTGGACCACCGGGGCCTG 16169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16050 GGCCCGGTCACCGACGCCGACGGCACGGCACCGCCCTCCTGCCCGGGCACGCCGACGTCTACGTC 16109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1000
                                                                                                                                                                                                            NT: IKEDA, HARUO
NT: ISHIKAWA, JUN
NT: HORIKAWA, HIROSHI
NT: SHIBA, TADAYOSHI
NT: SAKAKI, YOSHIYUKI
NT: HATTORI, MASAHIRA
DF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTTCGAACACCCTACCGAGCGCGCC 1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCCCGCGTGACCGCGATGAACACCTACGGTCCCACCGAGACCGCCGTCGACGCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTACGTCCTCGACGCGGGACTGCGGCCGGTCCCGGCGCGTGCTGGGGCGAGCTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TICCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTACTTCCGCAGCCTGCTCGACGCCGGACTGCTGGAGGAAGGCTTCCCCCTGCCCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACC 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGCGATGGTCGCCGGCCACGAAC---TGCACATGATCGACGAGGACCTGCGGTTCGAC 16346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAA 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGCGGCTGCTCCAGGCGCACCGCGGGTCACCTTCTCCCGCATCCGTCCCTCCGCAGGC 16229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----CCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGC 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        879
```

```
RESULT 15
US-10-314-657-1/c
; Sequence 1, Application US/10314657
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
TITLE OF INVENTION: Discrete Acyltransferases Associated with Type I Polyketide FILE REFERENCE: 054030-0021
CURRENT APPLICATION NUMBER: US/10/314,657
CURRENT FILING DATE: 2002-12-09
PRIOR APPLICATION NUMBER: PCT/US02/08937
PRIOR FILING DATE: 2002-03-22
PRIOR FILING DATE: 2003-03-26
PRIOR FILING DATE: 2003-03-26
PRIOR FILING DATE: 2003-03-26
PRIOR APPLICATION NUMBER: US 60/278,935
PRIOR APPLICATION NUMBER: US 60/278,935
PRIOR FILING DATE: 2001-03-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; LOCATION: (1)..(1371)
US-10-156-761-6160
                                                                                                                                                                                                                                                                                                                                                      APPLICANT: SHEN, Ben
APPLICANT: CHENG, Y1-Q1al
APPLICANT: TANG, Gong-Li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 309; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1341 CCACCT 1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1281 CAAGAACCGACTCGCCACCTCCGTGGCCGACTTCAACGGCGTCGGCTTCGACACCCTCGC 1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1161 CGTCTGCCGCGCGTGGCGGCGGCGGCTGGGACACCGACTCGAACGGCGACGCGACGCGGCAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101 CCCCAACACCCCCTGATCGCCGCCGCCCTCACCCACGCGGACGGCGACTTCAGCGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1041 CGACACGGTCGTCGACGAACTGCACGCCACCGCGGCTACCACTGGGTCCACGCCGT 1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  726 CGCGCT 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   546 CATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGC 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        366 CCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCT 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          925 ----GGCCACCACGGCATCCACCACTGCCTGCGCACCGGCCTCACCGTCGTCCCGCCGCA 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186 cceserica Acereros escriberos escencios es en concentratos es estados es estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126 GGGCGTGCGGGGGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCGCGCGCACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            687 GCGCATCGCGTACCGCAACCTCCTCGACGGCATCGAGCCCCCGCGCGACGGCCCGCCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCGCGCATGGCGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATCGCCGGTCTGCTGGCCGGCCGGCCGACCGCCTCCCGGACCGCTGGACCACCCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGCGCGCCGCGTCATGCCGGACTTGCAGCGGCGCCGCCGACGAGGAAATCGCGGC 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGACGCGTTGCGGGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTGGGCCATTCAAC 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCCGGCTGGCCAGGGCCGTCCGTCACGCGGTCCACCTGGCCGCCACCACAGAGGACTT 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCGAACGGCGTCTACGCGGCGATGTTCACGGCCGCCACCATCGCCGAGGCCGCCACC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGGAGACCCGGCGGCCGCGCGGCCCAGGCCCACCGCGACGCCACCCTCACCCACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCAC 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                             Y1-Qiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 82.4; DB 8;
Pred. No. 0.00035;
0; Mismatches 351;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            746
```

```
Ş
                                                                              밁
                                                                                                                  Ş
                                                                                                                                                          밁
                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 117655 GCTCGACGAGCTGTCCGCCCCGGGCGAGACACCGGTGGACCTCGTCCACAGCCCGCGGA 117596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db 117832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db 117892 GCTCGCGGCCACAAGCCGGGGCACCCGTATCGGCATCTTCTTCGGTGGCATGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 118012 CGACCAGCTCCGCTCCCACGCCGCACTCCACCCGGACCGCACCGCACTCGTCATCGACGG 117953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Streptomyces atroolivaceus
                                                                                                                                                                                                                                                                                                                         117355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn v
SEQ ID NO 1
LENGTH: 135638
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 4.7%;
Best Local Similarity 44.3%;
Matches 610; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                       117415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  117595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       117772 GCCGCTCGCCCTCCCGGCCGACGACGTCGAACGGCGTGCCCTGCAGTGCGAGC---TGGC 117716
1014 CGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGGCGCCATCTACTTCAT 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                           714
                                                                                                                                                                                                                                                                                                                                 774 GGTGATCTCGCACCACAAGGTCATGGGGCCAGCCCAATTTTCGGCCGCTCGCGGGAGACGCT 833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               477 CCATTCAACGCTGCGCGCCGGCGGTCATGCCGGACTTGCAGCGGCGCCGCCACCGACGAGGA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      177 CGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCA 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  117 CGCCGACCTGGGCGTGCGGGGGACCGCATCGGCCATCGGCGATCTGTCGGACGCCGC 176
                                                                                                                                         CACCGCCTCGGCGTTCCTCCATCCCCCGCTCGCCCCGCGCCCTGTTGGCCGCGATGCCCCG 117179
                                                                                                                                                                                                                     GECCCGCGTGATCGGCGCCTACTCGGCCAGCCAGGCCAAGCCCGCGTGACCATCGGCAC 117119
                                                                                                 CTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGGCGACCTGGATGAAGTCGCGGGCCGAGCG
                                                                                                                                                                             GGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCAC 953
                                                                                                                                                                                                                                                                                                   CGCGCTCATCGAGCACCATGCGGCGAGCACCGTCATGATGACCCCGAACCTCGCCGTGCA 117296
                                                                                                                                                                                                                                                             GCCGCTGATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGT 893
                                                                                                                                                                                                                                                                                                                                                                                  GCTCAACGCCACCCGACCACGCTCGTCCTCGCGCCGGGGAGACGCCGACCGGCTGTG 117356
                                                                                                                                                                                                                                                                                                                                                                                                                        GCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCCATCGGCCGCGAGCTGGACGTGCCGGT 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCCATGGTGGCGTCCGTGAACCTGGGCATCACCGCGAGCGCCACCACCGTCTCCATGGT 117416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CC---GGCCGCTGAGCGCGCATGGCGGCATCTACGCCACACGCGACGATGCGCGAAGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCACCAGAACCTCGCGACGGCGGGCGGACCGCCCTCCGTGATGGCGCACGACGAGCCCAC 117476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCGGCGCTTCTACCCGCCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGCGAGATCGTGTACTCCTCCGGCACCACCGGACTGGCCCGCGGCGTCGTCGTCTC 117536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGACTACCTGGACGCGTTGCGGGCCACGCCGGCCGGCCGTCAACGCCGCCTGTATGGTGGG 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCGGCTACGCGGCTACCTCGGCGCGCGCTCAAGGCCGGCGCCACCGTCCTTCACCT 117773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCATCGTCCACGGGCGGACCGCCCCGCCCACGACCTCGGCCGGTCGCCCTGGACCGGGAC 117656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAA 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCCCCGACCTGCTGTACGGCGAGTGGGACCGGCGCTCGGAGGCACTGGCCCGCGGGCT 117893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches 750; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 82; DB 8;
Pred. No. 0.00041;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 135638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      117833
```

Db 116701 GCTGGCGGCCACCCTCGCCGCTCACGCGAAGGACAGCCTCGCCCCCCACGAGATCCCCC 116644 Ş Db 116761 GCCGGCCGGCGTGGCCGCGATCGTGCCCGCGGCGGCGCCACCCATGACCCGAAGCT 116702 Š 밁 ş 밁 S Ş Db 116938 Db 116998 Db ·117058 밁 116821 117118 CTTCGACCCGGCGCGCCGATGTCGGCCGGCCGGCCCCCGGCACCCATGTACTGAT 117059 1308 1131 1074 GATGGACGAACCCGACGTG---CAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTC 1130 1248 GTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA 1367 CTTCGACCGCGAGACCGCGTGCCCACACCGGCCGGGCTCGTGTCGTCCCTG----CG 116822 GGGCGGATGGTGCGACACCGGCGACCTCGGCCACGTCGACGACGAGGGCGAGCTGTATCT 116879 CGACGGCGCGCCTCCCCGCAACCGCCTCGACGCGGGGCCCGGAGGCCACCGGTGTCCCCGGA 116939 CGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGGCACC---TTCCCGCG 1187 CACCGACGAGCACGGCGCGGAGCTGCCCGCCCATCGGGTCGGCCGGATCTGGCTGCGCGC GGTGCTGGGGCACTATGCGCGGGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAA 1247 116999

9

Search completed: May 11, 2003, 12:05:20 Job time : 935 secs

```
Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-009-782-1
1758
1 gaattccacttgatcgcgga......ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May 11, 2003, 01:57:27; Search time 3551 Seconds
(without alignments)
12447.337 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24791104 seqs, 12571243825 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pending_Patents_NA_Main:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
/ptodata/1/pna/US099C_COMB.seq:
/ptodata/1/pna/US099D_COMB.seq:
                                                                                                       /ptodata/1/pna/US098B_COMB.seq
                                            /ptodata/1/pna/US099B_COMB.sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /ptodata/1
                                                                                                                                                                                                                                                                                                                                                                                                                         /ptodata/1/pna/US090_COMB.seq:
/ptodata/1/pna/US091_COMB.seq:
/ptodata/1/pna/US092_COMB.seq:
/ptodata/1/pna/US093_COMB.seq:
/ptodata/1/pna/US093_COMB.seq:
                                                                                      /ptodata/1/pna/US098C_COMB.seq
                                                                                                                                                                                                                                                                                               /ptodata/1/pna/US095C_COMB.seq:
/ptodata/1/pna/US095D_COMB.seq:
/ptodata/1/pna/US096A_COMB.seq:
/ptodata/1/pna/US096A_COMB.seq:
                                                                                                                                                                                                               ptodata/1/pna/US096E_COMB.seq
                                                                                                                                                                                                                                                                                                                                                                                                         todata/1/pna/US094_COMB.seq
                                                                                                                                                                                                                                                         lata/1/pna/US
                                                                                                                                                                                                                                                                             lata/1/pna/US096B_COMB.seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMB. seq:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49582208
```

```
/cgn2_6/ptodata/1/pna/US6041_COMB.seq:*
              'cgn2_6/ptodata/1/pna/US6039_COMB.seq:*
'cgn2_6/ptodata/1/pna/US6040_COMB.seq:*
                                                /ptodata/1/pna/US6038
                                                                                                                                                                                                                    /ptodata/1/pna/US602
                                                             ptodata/1/pna/US6037
                                                                          ptodata/1/pna/US6035_COMB.seq:*
                                                                                                                                                                                                                                                                                                                                          /ptodata/1/pna/US60
                                                                                                                                        ptodata/1/pna/US6032
                                                                                                                       /pna/
                                                                                                                                                                                   /pna/US6029_comm.seq
                                                                                                                                                      /pna/US6030_COMB.seq
                                                                                                                                                                                                /pna/US6027_COMB.seq
/pna/US6028_COMB.seq
                                                                                                                                                                                                                                 /pna/US602
                                                                                                                                                                                                                                                 /pna/US602
                                                                                                                                                                                                                                                                                                                                                          /pna/US60
                                                                                                                                                                                                                                                                                                                                                                                       /pna/us
                                                                                                                                                                                                                                                                                                                                                                                                       /pna/US601
                                                                                                                                                                                                                                                                                                                                       9_COMB.seq
                                                                                                                                                                                                                                                                                                                                                                                                   seq:
                                                                                                                                                                                                                                                                                           .seq
                                                                                                                                                                                                                                                                                                           .seq
                                                                                                                                                                                                                                                                                                                        .seq
                                                                                                                                                                                                                                                                                                                                                                                      .seq
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

```
á
                                                                    밁
                                     밁
                                                                                  Ş
                                                                                                   뭐
                                                                                                                ő
                                                                                                                                                               ; NAME/KEY: CDS
; LOCATION: (34)...(1485)
; OTHER INFORMATION:
US-10-009-782-1
                                                                                                                              Ouery Match
Best Local Similarity 100.0%;
Matches 1758; Conservative 0
                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/10009782
GENERAL INFORMATION:
APPLICANT: TAKEUCHI, Ken-ichi
APPLICANT: KOIDE, Yoshinao
APPLICANT: HIROSE, Yoshihiko
                                                                                                                                                                                            SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
SERGIH: 1758
TYPE: DNA
ORGANISM: Alcaligenes xylosoxydans subsp. xylosoxydans
                                                                                                                                                                                                                                      TITLE OF INVENTION: TRANSFORMED MICROORGANISM AND FILE REFERENCE: 217301USOPCT US/10/009,782 CURRENT APPLICATION NUMBER: US/10/009,782 CURRENT FILING DATE: 2001-12-17 PRIOR APPLICATION NUMBER: PCT/JP00/03932 PRIOR FILING DATE: 2000-06-15 NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                     121
                                                   121
                                                                    61
                                                                                   13
                                                                                                                   H
           CACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACC
                           79
79
79
79
                                                                                                                                                                                                                                                                                                   KOIDE, Yoshinao
HIRÔSE, Yoshihiko
MORIGUCHI, Mitsuaki
ISOBE, Kimiyasu
                                                                                                                                                                                                                                                                                                                                                                                                                    3957
12249
12249
12249
12249
12249
18331
18331
18331
18331
18331
184746
154746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2280
5802
1674
4387
3957
                                                                                                                                                                                                                                                                                                                                                                                                                                                .
.
                                                                                                                                                                                                                                                                                                                                                                                                            US-09-758-759-126
US-01-166-087-45
US-02-252-991A-930
US-10-166-087-1
US-03-03-03-42316
US-03-03-540-745
US-09-902-540-721
2 US-10-200-562-193
2 US-10-207-551-193
2 US-10-237-551-193
3 US-10-237-551-193
4 US-09-953-348-74
5 US-09-953-348-74
6 US-09-953-348-74
6 US-09-953-348-74
6 US-09-953-348-74
7 US-09-953-348-74
8 US-09-953-348-74
8 US-09-953-348-74
8 US-09-953-348-96
9 US-09-953-348-96
9 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
1 US-09-953-348-96
                                                                                                                           Score 1758; DB 38;
Pred. No. 4.1e-259;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-252-991A-1112
US-09-252-991A-972
US-09-758-759-126
US-10-166-087-45
                                                                                                                                                                                                                                                                                                                                                                                        ALIGNMENTS
                                                                                                                                                                                                                                                                                         PROCESS
                                                                                                                           Indels
                                                                                                                                           Length 1758;
                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 193, App
Sequence 193, App
Sequence 74, Appl
Sequence 74, Appl
Sequence 96, Appl
Sequence 96, Appl
Sequence 96, Appl
Sequence 97, Appl
Sequence 1, Appl
Sequence 2, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
Sequence 8, Appl
                                                                                                                                                                                                                                                                                     FOR PRODUCING D-AMINOACYLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                           0
                                                                                                                         Gaps
                            180
                                           180
                                                                                           60
                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1112, Ap
972, App
126, App
45, App
15, App
1, App
1, App
142316, A
42316, A
42316, A
74, App
193, App
193, App
193, App
193, App
194, App
195, App
196, App
196, App
196, App
196, App
                                                                                                                          0
                å
                                ₽
                                              Ş
                                                                문
                                                                           Š
                                                                                               B
                                                                                                              Ş
                                                                                                                               밁
                                                                                                                                            δõ
                                                                                                                                                              밁
                                                                                                                                                                             Ş
                                                                                                                                                                                             밁
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                               1021
                                                                                                                                             1021
                                                                                                                                                             196
                                                                                                                                                                             961
                                                                                                                                                                                            901
                                                                                                                                                                                                            901
                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
ACCGCCGCGCGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGAC
                       CCGCACGACGACCGCCCCATCCGCGCCTGTGGGGCACCTTCCCCGCGGGTGCTGGGGCAC
                                                                                       GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTG
                                                                                               GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTG
                                                                                                                      TCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTGGCGCGAGACGCTGCCGCTG
                                                                                                                                                                                                                     ATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                            ATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                   CCGCTGAGCGCGATGGCGGCATCTACGCCACCCACATGCGCGACGAGGAGGAGGAGCACATC
                                                                                                                                                                                                                                                                                                                                                 GGCGCCTTCTACCCGCCCGCCGCCCCCCCCCCCCCCGAAGAGATCATCGAGGTGTGCCGG
                                                                                                                                                                                                                                                                                                                                                                                GCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                               TCAACGCTGCGCGCCGGTCATGCCGGACTTGCAGCGCGCCACCGACGAGGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                         TCAACGCTGCGCGCGCGCGCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATC 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGCCCCCTGGACCTGGTGGACGAAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                               TACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1320
                                        1260
                                                        1200
                                                                       1200
                                                                                                       1140
                                                                                                                                      1080
                                                                                                                       1080
                                                                                                                                                                                     960
                                                                                                                                                                                                     960
                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                  780
                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
```

Qy 1		ω ο	OY 151 GCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTG 210	
Db 1		ω ο	QY         91 GACGGCAGCAACACCCCGGGGGGGGGGGGGGGGGGGGG	
Db			31 4	
y da v		0;	Query Ma Best Loo Matches	
D Qy			; NAME/KEY: CDS ; LOCATION: (7)(1458) US-09-807-788-3	
ДУ	*		; LENGTH: 1473 ; TYPE: DNA ; ORGANISM: Alcaligenes ; FEATURE:	
Qy			; PRIOR FILING DATE: 1999-10-20; NUMBER OF SEQ ID NOS: 4; SOFTWARE: Patent Ver. 2.1; SEQ ID NO 3	
Dъ			CURRENT APPLICATION NUMBER: US/09/807,788 CURRENT FILING DATE: 2001-04-18 PRIOR APPLICATION NUMBER: PCT/GR99/01458	
Oy D		aminoacids	APPLICANT: Robert Christopher Brown TITLE OF INVENTION: AMINOACYLASE AND ITS USE IN THE PRODUCTION OF D-AN FILE REFERENCE: GJE-239	
Ο γ		:	; Sequence 3, Application US/09807788 ; GENERAL INFORMATION: ; APPLICANT: Stephen Tohn Clifford Table	
ρy			RESULT 2	t
Db Q			QY 1741 CTGAGCTACGAGAAGCTT 1758	
. g .		1740 1740	101 CONTROL CO	
ט ט ג		1680	1621 GTGATGGCCCTGCGCCCGAGCCCAAGGCCCGAAAATGACCCTGCAAGACCTG 1111	
S & &		1620 1620	1561 CGCTACATGGCCCCTCCCTCCGCTCGCATATACGGCCCCACCCGATATCGTGGGCAAGGAA	
) B 6		1560 1560	1501 CCCTTACAATCCGGCGTGAACGGGGGGGGGGTGCCGCTCCCAACCCTGGACGCAAAC	
Db Qy		1500	1441 TTCACCGGCCAGCATGCCGGCCGCGCTGCTCGCACGCACG	
Qy Db		1440 1440	1381 CGCGCCGCCGCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCG	
ОУ		1380 1380	1321 CTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAG	
<u> </u>		.320	1261 ACCGCCGCGCGCTTCGGCCTGGCCGGGCGGCAGCTGCAGGCCGGGTACTTCGCCGAC 1	

```
1144
                                                                     1171
                                                                                          1084
                                                                                                                                     1024
                                                                                                                1111
                                                                                                                                                           1051
                                                                                                                                                                                964
                                                                                                                                                                                                     166
                                                                                                                                                                                                                         904
                                                                                                                                                                                                                                              931
                                                                                                                                                                                                                                                                    844
                                                                                                                                                                                                                                                                                         871
                                                                                                                                                                                                                                                                                                                784
                                                                                                                                                                                                                                                                                                                                     811
                                                                                                                                                                                                                                                                                                                                                          724
                                                                                                                                                                                                                                                                                                                                                                             751
                                                                                                                                                                                                                                                                                                                                                                                                   664
                                                                                                                                                                                                                                                                                                                                                                                                                       691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304
                                                                                                                                                                                                                                                                                                                                                                                                                                             604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     511 TTGCAGCGCGCCGACCGACGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
GAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGC 1290
                                         TGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTG 1230
                                                                                   GGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCCCATCCGCGCCTG 1170
                                                                                                                              CCGGCGGCGCCATCTACTTCATGATGAACGAACCCGACGTGCAGCGCATCCTGGCGTTC
                                                                                                                                                                        CTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAG 1050
                                                                                                                                                                                                                    CTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGAC
                                                                                                                                                                                                                                                             TCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACGGCCGTGCTG
                                                                                                                                                                                                                                                                                                        TTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTC
                                                                                                                                                                                                                                                                                                                                                  GGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAAT
                                                                                                                                                                                                                                                                                                                                                                                            ACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATC 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCTGGCGCCGCTGGCGCACGCCAACCCGGCCCCCCCTGGACCTGCTGGACGACGAAGGC 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACGACTACCTGCTCAGGCGTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGCAGCGCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCC
                                                                                                                                                     1110
                                                                                                                                                                                                                                                                                    930
                                                                                                                                                                                                                                                                                                         843
                                                                                                                               1083
                                                                                                                                                                                                                                                             903
                                                                                                                                                                                                                      963
                                                                                                                                                                                                                                          990
                                                                                                                                                                                                                                                                                                                                                                        810
                                                                                                                                                                                                                                                                                                                              870
                                                                                                                                                                                                                                                                                                                                                   783
                                                                                                                                                                                                                                                                                                                                                                                                                  750
                                                                                                                                                                                                                                                                                                                                                                                                                                       663
                                                                                                                                                                                                                                                                                                                                                                                                                                                           690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        510
                                                                                                                                                                                                                                                                                                                                                                                             723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 450
```

```
Ş
                                                                                                  밁
                                                                                                                            Ş
                                                                                                                                                       밁
                                                                                                                                                                            S
                                                                                                                                                                                                        8
                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                å
                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: DNA; Klebsiella pneumoniae US-09-489-039A-1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-489-039A-1847

Sequence 1847, Application:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
NUMBER OF SEQ ID NOS: 14342
SEQ ID NO 1847
LENGTH: 1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: GATY Breton et. al TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO KLEBSIELLA FILE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
     536 AAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTT 595
                                                       476 GCCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAGG
                                                   467
                                                                                                  407
                                                                                                                            416
                                                                                                                                                     347
                                                                                                                                                                            356
                                                                                                                                                                                                      287
                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                        227
                                                                                                                                                                                                                                                                                                        167
                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                      119 CCGACCTGGGCGTGCGCGGCGACCGCCATCGGCGATCTGGTCGGACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1411
                                                                                                                                                                                                                                                                                                                                                                                                            47
                                                                                                                                                                                                                                                                                                                                                                                                                 1324
                               GTCACACCGCGCTGCGTAATAACCATATGGACGATCTGTTTCGTCCGGCGAACGAGACGG
                                                                                AGGCTTATGCCCATGCGGTGGAGGCGGCGCGACCGTCGCTGAATGTCGGCACGTTAATCG
                                                                                                  CCGACTACCTGGACGCGTTGCGGGCCACGCCACGCCGGCGGCGGCGTCAACGCCGCCTGTATGGTGG
                                                                                                                                 ACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCG 415
                                                                                                                                                                                                           TCACCACGGTGGTCACGGCCAATTGCGGCATCAGCCTGGCGCCGCTGGC---GCACGCCA 355
                                                                                                                                                                                    TGACGACGGTGATCGTCGGCAACTGCGGGATCAGTGCGGCGACCGCCACCATGCGGGGG
                                                                                                                                                                                                                                      CCCATGATGATATCAACGTGATCCGCATGCCGGAGTACTTGCCGAAGCTCAGCCAGGGGG
                                                                                                                                                                                                                                                            CCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCG
                                                                                                                                                                                                                                                                                     CGGAGCAGGTGATTGATGGCCAGGGGCGGGTACTGGCGCGCGGGCTTTATTGATGTGCATA
                                                                                                                                                                                                                                                                                                            CGCACACCCGGGTCGACGTGTCGGGCCTTGGTGGTCGCGCCCGGCTTCATCGACTCGCACA 238
                                                                                                                                                                                                                                                                                                                                       CTGATGTGGCGGTGAAGGGCGATCGAATTATGGCTATCGCCCCGGCGCTGGACGTTGCGG
                                                                                                                                                                                                                                                                                                                                                                                          789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCACGCACGGCCGCCTGAGCTCG 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCACGCACGGCCGCCTGAGCCCG 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09489039A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                24.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 428.6; DB 18; Pred. No. 3.4e-56;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches 579; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1479;
                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ω</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                  466
                                                                                                          475
                                                                                                                                    406
                                                                                                                                                                                                                                                                                       226
                                                                                                                                                                                                                                      286
                                                                                                                                                                                                                                                                                                                                          166
                                                                                                                                                                                                                                                                                                                                                                 178
                                                                                                                                                                                                                                                                                                                                                                                            106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1350
                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
Sequence 35, Application US/60184777
GEMERAL INFORMATION:
APPLICANT: Hodgson, David M.
APPLICANT: Hincoln, Stephen E.
APPLICANT: Russo, Frank D.
APPLICANT: Spiro, Peter A.
APPLICANT: Banville, Steve C.
APPLICANT: Banville, Steve C.
APPLICANT: Butcher, Shawn R.
APPLICANT: Dufour, Gerard E.
APPLICANT: Cohen, Howard J.
APPLICANT: Cohen, Howard J.
                                                                                                                                    RESULT 4
US-60-184-777-35
```

Rosen, Bruce

Panzer, Scott F Roseberry, Ann M. Wright, Rachel J. Chen, Wensheng Liu, Tommy

'n,

Jimmy Y.

Greenawalt, Lila B. Jones, Anissa L.

```
밁
                                                                   밁
                                                                                        Ş
                                                                                                                      밁
                                                                                                                                           Ş
                                                                                                                                                                       밁
                                                                                                                                                                                               Ş,
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                 1307
                                                                                                                                           1256
                                                                                                                                                                     1187
                                                                                                                                                                                               1196
                                                                                                                                                                                                                       1127
                                                                                                                                                                                                                                                 1136
                                                                                                                                                                                                                                                                          1067
                                                                                                                                                                                                                                                                                                  1076
                                                                                                                                                                                                                                                                                                                         956 GETGCAAGCCCTTCCCCGAACTGAGCGGGGGGGGGGGGACCTGGATGAAGTCGCGGGCCGAGCGGG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                               887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   707 CGATTCTCGAGGCGCTGGACGAAGCCTTCCGTATTGGTCGCCACGGCAACGTGCCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      587 GTACCGGGCTGGCCTACGCCAGCGCCTTCCAGTCGACCACCGAGGAGGTGATGGCGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      596 CGACCGGCCCTTCTACCCGCCCGCCGCCCGCGCCACCACCGAAGAGATCATCGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          527
AACGACCGGCGGACGGCATTGAGGCGGTGATGGTCAACGGCGTGATGAGCT 1417
                        CCSACCTGGTGCTGTTTGACCCGCAGACGGTGCGCGATGTCGCCAGTTTCTCCGACCCGA
                                                               CCGACCTGGTGGTGTTCGACCCGGCCACGGCGACGTGGCCATACCGCCACCTTCGAACACCCTA 1375
                                                                                                                GCCTGACCGCCGCGCGCTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCG 1315
                                                                                                 GCTGTCGCCGCCGCTTCCAGCTGGCGGGATCGCGGGCTGGTGAAAATTGGCTACTTTG
                                                                                                                                                    GCCACTATAGCCGCGACGAGCAGCTATTCCCGCTGACTACCGCGGTACACAAGATGACCG
                                                                                                                                                                           GGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCG
                                                                                                                                                                                                      GGCTGCGGAACGATCCGATGCGGCATCCGCGCGTGTGGGGCGCCTTCCCGCGGGTGCTCG
                                                                                                                                                                                                                   GCCTGCCGCACGACGAGCGCCCGCATCCGCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGG
                                                                                                                                                                                                                                                        TGGATGAGCAGGACGTACGGCGGGTGATGCGCTATCCGGTCACCATGATTGGCTCTGACG
                                                                                                                                                                                                                                                                       TGGACGAACCCGACGTGCAGCGCATCCTGGCCGTTCGGCCCGACCATGATCGGCTCCGACG 1135
                                                                                                                                                                                                                                                                                                          GGTCCGAAGCGCAGCCGGAGCAGGCGGGAAAACGCTGCAGCAGATCGCCGATGAGTGGC 1006
                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCTCGTCGACGCTGGATATGAAGCAGGTGACCGACGAGTTTGATATCGTGATTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGCTCCACCATGCTCAAGCAGGACGCGTGCTGCTGGCCGGACGCACCATCATCATCACCT 955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTTTTCGATGAGATGCGCCAGCAGCAGGATATCGCCTGCGACTGTTATCCCTACTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGTTTCGCACAAGTGCGCCGGGGCGAAAAACTGGGGGCGTACCAAAGAGACGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGAAGAGCTGGCGGCGGGGAAGGGCGTCTATACCACCCATTTACGTTCAGAGTTTGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAATCGCCGGCATGCGCGTACAGCTACGCGATGCGCTGCGCCAGGGAGCATTAGGGCTCA
                                                                                                                                                    1246
                                                                                                                                                                             1255
                                                                                                                                                                                                      1186
                                                                                                                                                                                                                                1195
                                                                                                                                                                                                                                                         1126
                                                                                                                                                                                                                                                                                                            1066
                                                                                                                                                                                                                                                                                                                                                                                                               946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         586
```

; ORGANISM: Kitasatosporia sp. US-10-152-886-54

ហ

```
RESULT 5
US-10-152-886-54
                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Shah, Purv1
APPLICANT: Chalup, Michael S.
APPLICANT: Hillman, Jennifer L.
TITLE OF INVENTION: HUMAN ENZYME MOLECULES
FILE REFERENCE: PT-0113 p
CURRENT APPLICATION NUMBER: US/60/184,777
CURRENT FILING DATE: 2000-02-24
NUMBER OF SEQ ID NOS: 1471
SOFTWARE: PERL Program
SEQ ID NO 35
LENGTH: 453
TYPE: DNA
ORGANISM: HOMO Saplens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No: 373369.1
US-60-184-777-35
CURRENT APPLICATION NUMBER: US/10/152,886
CURRENT FILING DATE: 2002-05-21
NUMBER OF SEQ ID NOS: 102
SOFTWARE: Patentin version 3.0
SEQ ID NO 54
LENGTH: 5877
                                                                                                                                                                                                                          Sequence 54, Application US/10152886 GENERAL INFORMATION:
                                                                                                     APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
APPLICANT: Zazopoulos, Emmanuel
TITLE OF INVENTION: GENES AND PROTEINS INVOLVED
TITLE OF INVENTION: STRUCTURES
FILE REFERENCE: 3011-30S
                                                                                                                                                                  APPLICANT: ECOPIA BIOSCIENCES INC.
APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 7.6%;
Best Local Similarity 56.0%;
Matches 253; Conservative
                                                                                                                                                                                                                                                                                                                                                                          1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1087
                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         727 GCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCAC 786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \vdash
                                                                                                                                                                                                                                                                                                                                                                 GACGAGCGCCCGCATCCGCGCCTGTGGGGGCAC 1178
                                                                                                                                                                                                                                                                                                                                 GACCCGTTTCCCCATCCACGTTTGTGGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                             GATGTACGGCGTATTCTTGCGCATCCGTTGTCGATGGTGGGTTCGGATGGTTTGCCGGAA 420
                                                                                                                                                                                                                                                                                                                                                                                                                              GACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCAC 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGCGCATCTACATGATGGACGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCCGGAGGTCGGCGGCGCGACTTGCAGGACATCGCGGCGCAGTGGGAGGTTTCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGGCAGCGCAAACCCAICCGGTCGGGTGTGATTGCTATCCCTATGCCGCCAGCTCGTCG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCATGGCGCGCGAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACC 906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCAAGTGCGCCGGTGCGGCAATTGGGGGCGCGCAGTCCGCAACTGTTGGCATCGTTGGAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGCTGGATTTGAAGCAGGTCACCGACGCGTTTCGTATCACTATTACCTGGTCAACACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACAAGGTCATGGGCCAGCCCAATTTCGGCCGCGCGCGAGACGCTGCCGCTGATCGAG 846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGATGGACGAGGCGTTTGTGATTGGCCGGACATGCGCAGGCACCGGTGATCATTTCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 133.6; DB 62;
Pred. No. 4.2e-11;
0; Mismatches 199;
                                                                                                                                                                                                                                                                                                                                452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Amshey, Stera..
Fong, Willy Tuen
                                                                                                                                   HZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stockdreher, Theresa
Y, Stefan
                                                                                                                             THE BIOSYNTHESIS OF ENEDIYNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 453;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                           RING
```

```
뭠
                                                                              Ş
                                                                                                           밁
                                                                                                                                 Š
                                                                                                                                                               밁
                                                                                                                                                                                        S
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 659; Conserv
                        1025
                                                    3182
                                                                                                          3122
                                                                                                                                                     3002
                                                                                                                                                                                                                                               .785
                                                                                                                                                                                                                                                                           2948
                                                                                                                                                                                                                                                                                                                               2888
                                                                                                                                                                                                                                                                                                                                                                         2828 CGGCCGCCGCGCGCGCCGCCGCCGGAGAGGCCACCAGCCTGGAGGTGCTGATCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2708
                                                                              965
                                                                                                                                    905
                                                                                                                                                                                                                                                                                                                                                                                                                                725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2528
                                                                                                                                                                                         845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2588
                                                                                                                                                                                                                                                                                                                                                           665
                                                                                                                                                                                                                                                                                                                                                                                                                  605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2468 TOGTCCAGCCGGTGCGCTTCACCGACGCGCTGCGCGCCATGGACGGCAGGTCGACCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2408 CCGTCACCGGCGCGCCGCCGCCGACACCGACGTGGTGGACCTGCTCACCCGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 131 TGCGCGGCGACCGCATCGCC---GCCATCGGCGATCTGTCGGACGCCGCGCGCACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       248 ACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            188 GGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCCACGACG
AGTACGACGTGGTGCCGAGCTGCAGCCGGCGGCGCCATCTACTTCATGATGGACGAAC
                                        CCTTCCCCGAACTGAGCGGGGGGGGACCTGGATGAAGTCGCGGGCGAGCGGGCAAATCCA
                                                                                               CCGCCGCCGCCTCGCCTCGGTGCGCCCTTCCGGATCGACCTCACCGAGACCCCGC
                                                                                                                       CCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGACCATCATCACCTGGTGCAAGC
                                                                                                                                                                              AGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCA
                                                                                                                                                                                                         AGGAACTGGGCATCTCCGCCCCCATGGTCACCACCGCGTTCGCCACCTCCACGCTCAGCC
                                                                                                                                                                                                                              ACCACAAGGTCATGGGCCAGCCCCAATTTCGGCCGCTGGCGCGAGACGCTGCCGCTGATCG
                                                                                                                                                                                                                                                               ACGAACTGCACCTCAGCTCCATCACCGTCGGCCAGATCATGAACCAGGCCG-----CCC
                                                                                                                                                                                                                                                                                         CCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGC 784
                                                                                                                                                                                                                                                                                                                    TCGCCGCCGCGCGGCCGAACTGCCCGCCGAGACGGTCGACCCGGCCGACCAATCCGCTCG
                                                                                                                                                                                                                                                                                                                                               TGAGCGCGCATGGCGCATCTACGCCACCCACATGCGCGACGAAGGCCGAGCACATCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                   CCATGCGGGACCTGGCCGAAGGAAGCCATGGCCAGCGGCGCATCGGCATTTCGACCGGCG 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCTGCGCGCCGCGTCATGCCGGACTTGCAGGCGCGCCGCCACCGAGGAAGTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGCCGCTCGACAAGGAGTTCCGGTTCTTCGCCAGCCCCTGCGAGACGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACCGCCTGGACGATGGGCGCCCGCCGGTCCGCCACGAGCGGCTGTTCGCCGACCGGTTCA 2707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCCATTCAA 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCCCGCGGTCGCCACCGAGGCCGACGCGCTCTCGCTGGCCGGGCTGCTCGCCACCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -- CCCCTGGACCTGCTGGACGAAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGACTACC 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGATCGAGGTCGGCCCGGGCCAGATCCTGCGGACGCTGGCCGCCGAGGTGCTGCCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGTCACGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACCCGCCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTCGCCGAACACCTCGCCGGGGAGCGCTTCGGCCCGGTCGGCCCCGGCCTGGTCTCCA: 2407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 832;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 88.8; DB 41;
Pred. No. 0.0002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21;
               1084
                                                                                                                                                     3121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                               3181
                                                                                                                                                                               904
                                                                                                                          964
                                                                                                                                                                                                         3061
                                                                                                                                                                                                                                     844
                                                                                                                                                                                                                                                                 3001
                                                                                                                                                                                                                                                                                                                      2947
                                                                                                                                                                                                                                                                                                                                                                            2887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2647
                                                                                                                                                                                                                                                                                                                                                 724
                                                                                                                                                                                                                                                                                                                                                                                                      664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   187
```

```
RESULT 6
US-09-976-059-1
                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn version 3.0
SEQ ID NO 1
LENGTH: 88421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/976,059
CURRENT FILING DATE: 2001-10-15
                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 34
                                       NAME/KEY: misc_feature
LOCATION: (4038)..(5048)
OTHER INFORMATION: ORF 3; positive strandedness
NAME/KEY: misc_feature
                                                                                                                    NAME/KEY: misc_feature
LOCATION: (4038)..(5048)
OTHER INFORMATION: ORF 3; positive strandedness
                                                                                                                                                                                                                                                                                                          TYPE: DNA
ORGANISM: Actinoplanes sp.
                                                                                                                                                                                LOCATION: (311\overline{8})...(4032)
OTHER INFORMATION: ORF 2; positive strandedness
                                                                                                                                                                                                                                       LOCATION: (2077)...(3078)
OTHER INFORMATION: ORF 1; positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICANT: Farnet, Chris
                                                                                                                                                                                                                           AME/KEY: misc
                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPLICANT: Zazopoulos, Emmanuel
PPLICANT: Staffa, Alfredo
ITLE OF INVENTION: Genes and Proteins for Biosynthesis of Ramoplanin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1442 TCACCGGCCAGCATGCCGGCCGCGCGTGCTGCAC-----GCACGGCCGGCCTGAGCCCGGC 1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1382 GCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGT 1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1085 CCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGC 1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3242 CGCTGGCCGGACCGCTCGCCGAGCGGCTCACCGCCACCGCCCCCGGCGGCGGCGTCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE: 3019-PCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCCGGGACA 3793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAAACCGCTACA 1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCCTCGCCCTGGCCGGCGAACGGCGCGCGATCGGCCTGATCGGCCGCTCCGACC.3781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTCGGCCCGCGGACGTCCTGCTGGTCACCGGCGGCAAGGGGCATCACCGCCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCAGCCCTTACAATCCGGCGTGAACGGGGGGGGGGGGCGTGCCGCCCCCCAACCCTGGACG 1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCACCCGCGGGTCCCCGTGCTGCGCCCCGTCCGAACCCGACCCCGGACGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATCGCCGCCGACCGCCGCCACCACCGGCTTCAGCGAGGTCCACTACGACGCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGC 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCGCCGGCCTCGCCAAGACGCTCCACCTGGAGGCCCCCGACATCCCGGGTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCCTCGACCCGGCCGCCGCGCGCGCGCACCCGGCTCGTCGCCGTCGGCGACCACC 3421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGCGACCTGGGCCTGTTC---CCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGA 1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09976059
teature
                                                                                                                                                                                                                           feature
             ORF 4; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3301
                                                                                                                            NAME/KEY: misc_feature
LOCATION: (81624)..(79861)
OTHER INFORMATION: ORF 26;
                                                                       DTHER INFORMATION: ORF 27;
                                                                                                                                                                                      LOCATION: (79864)..(78107)
OTHER INFORMATION: ORF 25;
                                                                                                                                                                                                                                             LOCATION: (78110)..(76449)
OTHER INFORMATION: ORF 24;
                                                                                                                                                                                                                                                                                   NAME/KEY: misc
                                                                                                                                                                                                                                                                                                    LOCATION: (75535)..(76464)
OTHER INFORMATION: ORF 23;
                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (74216)..(73563)
OTHER INFORMATION: ORF 21;
                                                                                                                                                                                                                                 NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                            LOCATION: (75424)..(74213)
THER INFORMATION: ORF 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: (73439)..(71964)
THER INFORMATION: ORF 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OCATION: (70659)..(71906)
OTHER INFORMATION: ORF 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: (39713)..(65800)
OTHER INFORMATION: ORF 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATION: (70099)..(70662)
THER INFORMATION: ORF 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COCATION: (66546)..(67370)
THER INFORMATION: ORF 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COCATION: (65826)..(66530)
OTHER INFORMATION: ORF 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WAME/KEY: misc_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COCATION: (19032)..(39713)
OTHER INFORMATION: ORF 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OCATION: (15880)..(19035)

OTHER INFORMATION: ORF 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OCATION: (397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OCATION: (15591)..(15863)
OTHER INFORMATION: ORF 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (12751)..(10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AME/KEY: misc
OCATION: (158)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THER INFORMATION: ORF 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VAME/KEY: m.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OCATION: (9691)..(10761)
OTHER INFORMATION: ORF 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OCATION: (9464)..(8130)
THER INFORMATION: ORF 6; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COCATION: (7703)...(6693)...
DTHER INFORMATION: ORF 5; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OCATION: (13617)..(12802)
THER INFORMATION: ORF 9; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OCATION: (12751)..(10829)
THER INFORMATION: ORF 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATION: (67384)..(70059)
THER INFORMATION: ORF 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sc_feature
                                                                                                              reature
                                                         reature
                                                                                                                                                                                                                                                                                                                                            reature
                                                                                                                                                                                                                                                                                                                                                                                                 feature
                                                                                                                                                                                                                           feature
                                                                                                                                                                                                                                                                                     feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                         eature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                eature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            eature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      reature
                 ORF 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (13614)
               negative strandedness
                                                                     negative strandedness
                                                                                                                              negative strandedness
                                                                                                                                                                                      negative strandedness
                                                                                                                                                                                                                                           negative strandedness
                                                                                                                                                                                                                                                                                                  positive strandedness
                                                                                                                                                                                                                                                                                                                                                          negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                 negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  negative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     strandedness
```

밁

밁

Ş

```
ş
                                                  ₽
                                                                            Š
                                                                                                            В
                                                                                                                                      õ
                                                                                                                                                                     밁
                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                              46890
                                                                                                                                                                                                                                 46770
                                                                                                                                                                                                                                                                                          46710
                                                                                                                                                                       46830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46230 TGGCCCGGCACGAGGTGCTGCGCACGGTGTTCACGGTCGCCGACGGCGAGCCGTGGCAAC 46289
                                                                                                                                                                                                                                                                                                                                                    46650
                                                                                                                                                                                                                                                                                                                                                                                                              46590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              46470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (87372)..(86803)
OTHER INFORMATION: ORF 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (85556)..(86845)
OTHER INFORMATION: ORF 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (87494)..(88420)
OTHER INFORMATION: ORF 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (84481)..(85548)
OTHER INFORMATION: ORF 30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
                      809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 329
                                                                                                                                                                                                                                                            569
                                                                                                                                                                                                                                                                                                                                                                               449
                                                                                                                                                                                                                                                                                                                       509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35 TGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACG 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 43.1
mes 605; Conservative
                                                                                                                                                             TCATGACCCTGCAGGCCGCCGTGGCGGTCCTGCTGTCGCGGCTCGGCGCGGGGACCGACG
ATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACG
                                                                                                                               TCTTCGTCAACACGCTCGTGCTGCGCACCGACCTGACCGGCGACCCGCGGCTGACCGACG
                                                                      TCGGCCGCGAGCTGGACGTGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCA
                                                                                                     CCACCACGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACG
                                                                                                                                                                                                                        TCCCGGCCGACGTGCACCGGAGCCTGCGCCGGGTCGCCGACCACGGCGCGACCGTCT
                                                                                                                                                                                                                                                   CCGCCGACCGGCCGCGCCGCGCGCGCCTCGCACCGCGCCCACCTGCACAGCGCGGAGA 4676
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCCGCGCGGCGGGGGCAGGCGCCCGAGTCGGAGACCCTGCCCGTCCAGTACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGTCGAGGAGGCGGTCGCCGAAGCGGCCGCGTACGCCTTCGACCTGGCCCGGGAGATCC 46409
                                                                                                                                                                                                                                                                                                            ACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGAACCTGGCCGAGGAAG
                                                                                                                                                                                                                                                                                                                                           CCCGGCAGATCGCCCACTGGCGCGAGCGGCTCGACGGCGTGCCGGAGGAGCTGGACCTGC
                                                                                                                                                                                                                                                                                                                                                                      CGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                   ACTACGCCCTCTGGCAGCGTGACCTGCTGGGCTCCGACAGCGAACCCGGCGAGCCTGATCT 46649
                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGG 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAGCCTGGCGCCGCGCACGCCAACCCGCCCCCCCTGGACCTGCTGGACGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACATCGCGGCCGACGGCTGGTCGATGCGGCCGCTGGCCGCGACCTGGCGACCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCA 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTGCGTGCTGCTCGCCCCCCGGCGACGGCACCCACGTGCTCGTGCTGCTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAG-----GCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGGCGATCTGTCGGACGCCGCGCCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORF 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            positive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 0.00037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          strandedness; N-terminus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 88421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             only
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                         808
                868
                                                                                                                                                                                            889
                                                                                                                                                                                                                         46829
                                             47009
                                                                                                                                                                46889
                                                                                                                                                                                                                                                                                                                                           46709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                      628
                                                                                                                                                                                                                                                                                                                                                                                                                                                             46589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46529
```

```
뭉
                                      S
                                                                                                                                           ; LOCATION: (1):.(770)
; OTHER INFORMATION: unsure at all n locations US-09-739-449-925
                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 09
PRIOR FILING DATE: 2000-02-23
NUMBER OF SEQ ID NOS: 13351
SEQ ID NO 925
LENGTH: 770
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-739-449-925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                      Query Match
Best Local S
Matches 214
                                                                                                                                                                                                                                                                                                                                                                                 Sequence 925, Application US/09739449
GENERAL INFORMATION:
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater Steven C.
TITLE OF INVENTION: Agrobacterium tumefaciens
EILE REFERENCE: 38-10(15490)C
                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US, CURRENT FILING DATE: 2000-12-
                                                                                                                                                                                          FEATURE: unsure
                                                                                                                                                                                                                           ORGANISM: Agrobacterium tumefaciens
                             1078 GACGAACCCGACGTGCAGCGCATCCTGGCCGTTCGGCCCGACCATGATCGGCTCCGACGGC 1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47592 TCGCCCGCTGGCTGCGCCGCCACG 47615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47010 TGCTCGGCCAGGTGCGCGAGCTGACCCTGCGGGCGCTGGCCCACCAGGACGTCCCGTTCG 47069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   47364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1409 TCAACGCCCCCCCCCTCTGGCAAG 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1289 GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGG 1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       869
       35
                                                                                       Local Similarity
CCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGAGATCACCGTCGCGGCGCTCGTCGCCGAGCAGTGCGCCCGCACGCCGGGTGCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGGGCCTGGGCCTGTTCCCGC 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGACCTCTTCGACGCGGCACGGCCGCCCGGCTCGCCGGCTACCTGAGCCGCGTTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGAGACCTTCGACGCCGCGGGGGAGCCGGCCGGCCTGCGCGTCGACCTCATCGCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGATGTCGGTCGTGCCGACCGGCGCGCCGTTCCGGCCAAGTTCGACCTCGACCTCACGTTCA 47243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAGGCGGAGGAGCCGGCTCATGCTCGCCGCCGGTGAGGAGCCCGCGCCCGGCCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGTGCTCGCGGCGATCCGCGGCGGCCGCCTGGCCGAGGTCGA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATCCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTGGATGAAGTCGCGGCCGAGCGCGCCAAATCCAAGTACGACGTGGTGCCCGAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCAGGTCATGGTCACCCTGGACGGCGGCGGGCCGGACGGCCGAGCTGCCGGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGAAGCTGGTCGAGGAGCTCACCCCGGCCCGGCTC-----GCTCGCCCGGCACCCCCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCCGGCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGT 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCG
                                                                                       4.9%;
                                                                                                                                                                                                                                                                                                                                                                     US/09/739,449
                                                                                                                                                                                                                                                                                                                                    09/514,000
                                                                                     Score 85.4; DB 29; Pred. No. 0.00089;
                                                                      Mismatches 205;
                                                                                                                                                                                                                                                                                                                                                                                                     Genome Sequences and Uses Thereof
                                                                    Indels
                                                                                                     Length
                                                                   :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          988
                                                                   ۲,
```

```
S
           밁
                                   Ş
                                                                밁
                                                                                                                      밁
                                                                                                                                               Ş
                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                       ; NAME/KEY: unsure

; LOCATION: (1)..(770)

; OTHER INFORMATION: unsure at all n locations

US-09-803-110-925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-803-110-925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 925, Application US/09803110
GENERAL INFORMATION:
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
TITLE OF INVENTION: Agrobacterium tumefaciens Genome Sequences and Uses Thereof FILE REFERENCE: 38-10(15490)D
CURRENT APPLICATION NUMBER: US/09/803,110
CURRENT FILING DATE: 2001-03-12
PRIOR APPLICATION NUMBER: US 09/739,449
PRIOR FILING DATE: 2000-12-19
PRIOR FILING DATE: 2000-12-19
PRIOR FILING DATE: 2000-12-19
                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 214; Conserv
                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: US 09/514,000 PRIOR FILING DATE: 2000-02-23 PRIOR APPLICATION NUMBER: US 60/168,139 PRIOR FILING DATE: 1999-12-01 NUMBER OF SEQ ID NOS: 13351 PAGE 1D NO 925 LENGTH: 770
                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Agrobacterium tumefaciens
                                    1258
                                                                                          1198
                                                                                                                                                1138
                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                           1078 GACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGC 1137
          215
                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1198
                                                                                                                                                                1138 CTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGG 1197
                                                                                                                     95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                          CTGACCGCCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCC 1317
                                                      CTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGG 1197
                                                                                CACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC 125
GACCIGGIGGIGTICGACCCGGCCACGGIGGCCGATACCGCCACCIICGAACACCCTACC 1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAG 1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGACCGCCGCGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGC 1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                           51.0%;
                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                           Score 85.4;
Pred. No. 0
                                                                                                                                                                                                                           ore 85.4; DB 31; ed. No. 0.00089; Mismatches 205;
                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                     Length 770;
                                                                                                                                                                                                                         1.
                                                                                                                                                                                                                       Gaps
274
                                                                                                            154
                                                       214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       214
                                                                                                                                                                                                                        ۲,
```

```
밁
                                  Ş
                                                               밁
                                                                                                                   뭥
                                                                                                                                           Ş
                                                                                                                                                                        밁
                                                                                                                                                                                                ş
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Micromonospora carbonacea
US-09-758-759-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 204
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match

Best Local Similarity

Matches 542; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1,
        94978
                                                                                                                   94858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: ID0983K US
CURRENT APPLICATION NUMBER: US/09/758,759
CURRENT FILING DATE: 2001-01-11
                                                                                                                                                                        94798
                                                                                                                                                                                                                                                                           94678 GGTCACCGCGCGCGACGGCGTCGGCGGGGTGCTGGTCGGGGTGCTGGCCGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: US 60/175,751 PRIOR FILING DATE: 2000-01-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Horan, Ann C.
TITLE OF INVENTION: Everninomicin Biosynthetic
                                                                                                                                                                                                                                                                                                                                         94618
                                                                                                                                                                                                                                                                                                                                                                                                94558
                                                                                                                                                                                                                                                                                                                                                                                                                                            94498 CGTGGACCTTGTCCACGGCGCCGCCGACCTGGCCGCGTTCGGTGCCACCGGGTACGCGCT 94557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Hosted,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 109519
                                                                                                                                              465
                                                                                                                                                                                                  405
                                                                                                                                                                                                                                                                                                                                                                                                                           177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1438
                                                                                                                                                                                                                                                       357
                                                                                                                                                                                                                                                                                                              297
                                                                                                                                                                                                                                                                                                                                                                     237
                                                                                                                                                                                                                                                                                                                                                                                                                                                               117 CGCCGACCTGGGCGTGCGGGGGACCGGATCCGCCATCGGCGATCTGTCGGACGCGC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275
CCTGGACCTGCCGGCCGGCCGGGGTCGCCGTGGTCGGGCCGAGCGGCGGCCAAGAG
                         CATCGGCATTTCGACCGGCGCCTTCTACCCGCCCGCCGCCGCCGCCACCACCAAGAGAG 644
                                                     CTTCGACGCGGTCACCGTGCGGTACCGGGCCGGCCACCGGCCCCTGGACCGGGTCAC
                                                                               CACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCCATGGCCAGCGGCGC
                                                                                                          CGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGC
                                                                                                                                                                                                                                              CCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTT-----T
                                                                                                                                                                                                                                                                                                    GGACGCCGCCGATCGGGCCGGCCGGCTGGCCCGGCTGGAACGACGGCTCGCCGCCAC 94617
                                                                                                                                                                                                                     CCTGGCCGCCGTCGAGGTGGCGCTGGCGCTCGGGGCCCCCGGCAGCGCAGCT
                                                                                                                                                                                                                                                                                                                               CGGCTTCGCCGTGGACGCCGCGGGGCGCTCGTCGCCGGGGTGACCGCCGGCACGGTGGT 9467:
                                                                                                                                                                                                                                                                                                                                                          CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGG 296
                                                                                                                                                                                                                                                                                                                                                                                                                CGCGCACACCCGGGTCGACGTGTCGGGCCTGGTCGTCGCGCCTCCATCGACTCGCA 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCGGTCTGGCAAGAGCAG 1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09758759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wang, Tim X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thomas J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 84.6; DB 29;
Pred. No. 0.00058;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches 629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                109519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
 95037
                                                     94977
                                                                                                           94917
                                                                                                                                     524
                                                                                                                                                                                                                                                                           94737
                                                                                                                                                                                            464
                                                                                                                                                                                                                                                404
                                                                                                                                                                 94857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŝ
```

US-09-758-759-150

5.

```
Sequence 150, Application US/09758759
GENERAL INFORMATION:
APPLICANT: Hosted, Thomas J.
APPLICANT: Wang, Tim X.
APPLICANT: Horan, Ann C.
TITLE OF INVENTION: Everninomicin Biosynthetic Genes
FILE REFERENCE: ID0983K US
CURRENT APPLICATION NUMBER: US/09/758,759
CURRENT APPLICATION NUMBER: US/09/758,759
CURRENT FILING DATE: 2001-01-11
PRIOR APPLICATION NUMBER: US 60/175,751
PRIOR FILING DATE: 2000-01-12
NUMBER OF SEQ ID NOMER: US 60/175,751
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 150
LENGTH: 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                                                                                                                  US-09-758-759-150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
NAME/KEY: CDS
LOCATION: (1)..(1839)
OTHER INFORMATION: evcE
                                                    ORGANISM: Micromonospora carbonacea FEATURE:
                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                    95698 G 95698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               645
                                                                                                                                                                                                                                                                                                                                                                                                                                  G 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCGGGTACCTGGCCCTGACGCCCCGGCCCCTGAGCCGGCTCCGGGATTCCCCCGGGACGC.95697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGG 1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAGTTGGTCGCCGCGCCGGGCTGGTACCGGGACCAGTGGCTGCTCCAGGAGGCGGCCGA 95637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACCTCGACGAGATCGTGGTGCTCGACGCCGGCCGGGTGGTCCAGCGTGGCCGGCACGA 9557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGGCGACCCCGCCGGGCACTCGGTGCTGCTGATCAGCCACCGGCTCAGCGGGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAGCCGGCCGGCGCCATCTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGC 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGAGCCGACCGAGGGGCTCGACCCGTCCGCCGACGCGGTGCTCGCCTCGGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGATGAAGTCGCGGCCGAGCGCGAAATCCCAAGTACGACGTGGTGC-----CCGAGCT 1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGACGCACCATCACCTGGTGCAAGCCCT--TCCCCGAACTGAGCGGGGGGGGGCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCCAGCCGGGTGGGACACCGTGGTCGGCGAGGAGGGCGGACAGCTCTCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCG----- 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCGCGCGAGACGCTGCCGCTGATCGAGGCCCGCCATGGCGCCCAGGACGTCTCGCTGGA 878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGGCCGACCTGTCGGCGTACCCGGGTCGAGGAACTGCCCCGGGCCGTCGGCGGCCTGCT 95157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCCATCGGCCGCGAGCTGGA 764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCCTCGCCGCCGTCCTCACCGGCACGGTGCGACCCGAGCAGGGCCGGGTCACCCTCGA 95097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95457
```

```
밁
                                                                                             Ş
                                                                                                                             밁
                                                                                                                                                      Q.
                                                                                                                                                                                   밁
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                               닭
                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 515
            1629
                                       1047
                                                                                                                                                                                   1449
                                                                                                                            1509
                                                                                                                                                                                                                                            1389
                                                                                                                                                                                                                                                                                                     1329
                                                                                                                                                                                                                                                                                                                                                1269 CGGGGCCGACCTGTCGGCGTACCCGGTCGAGGAACTGCCCCGGGCCGTCGGCGGCCTGCT 1328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1149
                                                                                                                                                                                                                                                                                                                                                                                                          1209 CACCCTCGCCGCCGTCCTCACCGGCACGGTGCGACCCGAGCAGGGGCCGGGTCACCCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1089
                                                                                                                                          935 CCGGACGCACCATCATCACCTGGTGCAAGCCCT--TCCCCGAACTGAGCGGGCGCGACCT
                                                                                                                                                                                                               879
                                                                                                                                                                                                                                                                         819
                                                                                                                                                                                                                                                                                                                                 765
                                                                                                                                                                                                                                                                                                                                                                                                                                                    645
                                                                                                                                                                                                                                                                                                                                                                            705 CGAAGGCGAGCACATCGTGGGCGCGCGCGGAGGAAACCTTCCGCATCGGCCGAGCTGGA 764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      909 COTGGCCGCCGTCGAGGTGGCGCTGGCGCTGGTCGGGGCCCCCGGCAGCGCAGCCCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297 CGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCCCGCTGGCGCACGCCAA 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117 CGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.8%;
Local Similarity 45.6%;
les 515; Conservation
GGCGGCGACCCCGCGGGCACTCGGTGCTGCTGATCAGCCACCGGCTCAGCGGGCTCGC
                          GCAGCCGGCCGCCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGC 1106
                                                                                  GGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGA-----GCT 1046
                                                       CGACGAGCCGACGGGGGCTCGACCCGTCCGCCGACGCGGTGCTCGCCTCGGCGCT
                                                                                                                 CGCCCAGCCGGCCGGGTGGGACACCGTGGTCGGCGAGGAGGGCGGACAGCTCTCCGGCGG
                                                                                                                                                                                                                                CTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCCAGGACGTCTCGCTGGA 878
                                                                                                                                                                                                                                                                                          CGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCCAGCCCCAATTTCGGCCG-----
                                                                                                                                                                                                   CGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA----GGACCGCGTGCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGGACCTGCCGGCCGGCCGGGTCGCCGTGGTCGGGCCGAGCGGCGCCGCCAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATCGGCATTTCGACCGGCGCCTTCTACCCGCCCGCCGCCGCCGCCACCACCGAAGAGAG 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCGACGCGGTCACCGTGCGGTACCGGGCCGGCACCGGCCCCGGGCCCTGGACCGGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCGACGAAAATCGCGGCCATGGGGACCTGGCCGAGGAAGCCATGGCCAGGGGCGC 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCACCCGCCCGGTGCCGCCGTGCCGCCGTCGGTGCGGCCCGCACGACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGTATGGTGGGCCATTCAACGCTGCGCGCGCGCGTCATGCCGGACTTGCAGCGCGCCGC 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGGCCGGGCTGGTCGGGTGGCCGCCTGCTGACCGCCCCGCAGGCCGACGCCCCGC 1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCG------TTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTCACCGCGCTGCGCGACGGCGTCGGCGGGGTGCTGGTCGGGGTGCTGGCGGTTCGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACGCCGCCGATCGGGCCGGCCGGCTGGCCCGGCTGGAACGACGGCTCGCCGCCAC 788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGGACCTTGTCCACGGCGCCGCCGACCTGGCCGCGTTCGGTGCCACCGGGTACGCGCT 728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCTTCGCCGTGGACGCCGCGGGGGGGGCGCTCGTCGCCGGGGTGACCGGCACGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCGCCCCGGCTTCATCGACTCGCA 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 84; DB 29;
Pred. No. 0.0013;
0; Mismatches 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   585;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1839;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels 30; Gaps
 1688
                                                                                                                                             992
                                                        1628
                                                                                                                 1568
                                                                                                                                                                                                                                 1448
                                                                                                                                                                                                                                                                                          1388
                                                                                                                                                                                                                                                                                                                       818
                                                                                                                                                                        1508
                                                                                                                                                                                                      934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1088
                                                                                                                                                                                                                                                                                                                                                                                                             1268
                                                                                                                                                                                                                                                                                                                                                                                                                                       704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  296
```

```
Db 117475
                                                                                                 밁
                                                                                                                                   Ş
                                                                                                                                                                          밁
                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                        Db 117715
                                                                                                                                                                                                                                                                                                                                                                                                 Db 117772
                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 118012 CGACCAGCTCCGCTCCCACGCGCACTCCACCCGGACCGCACCGCACTCGTCATCGACGG 117953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT-US02-08937-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                  117595 CGCCGCCGAGATCGTGTACTCCTCCGGCACCACCGGACTGGCCCCGCGGCGTCGTCTCTC
                                                                                                                                                                                                                       117655 GCTCGACGAGCTGTCCGCCCGGGGGGGAGACACCGGTGGACCTCGTCCACAGCCCCGCGGA 117596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application PC/TUS0208937
GENERAL INFORMATION:
APPLICANT: THE REGENTS OF THE UNIVERSITY OF
TITLE OF INVENTION: LEINAMYCIN BIOSYNTHESIS
FILE REFERENCE: 399T-000110PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR FILING DATE: 2001-03-26
NUMBER OF SEQ ID NOS: 222
SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: PCT/US02/08937
CURRENT FILING DATE: 2002-03-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 135638
TYPE: DNA
ORGANISM: Streptomyces atroclivaceus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER:
                                                                                                                                                                                   537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGACCATCGGCATTTC 596
                                                                                                                                                                                                                                                                                                                                                            417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -US02-08937-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              117 CGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1107 GTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCCCATCCGCG 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A.7%; Score 82; DB Local Similarity 44.3%; Pred. No. 0.00 Nes 610; Conservative 0; Mismatches
CCCCATGGTGGCGTCCGTGAACCTGGGCATCACCGCGAGCGCCACCACCGTCTCCATGGT 117416
                                   CC---GGCCGCTGAGCGCGCATGGCGGCATCTACGCCCACCACATGCGGCGACGAAGGCGA 713
                                                                        GCACCAGAACCTCGCGACGGCGGGCGGACCGCCCTCCGTGATGGCGCACGACGACCCCAC 117476
                                                                                                             GACCGGCGCCTTCTACCCGCCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                 CGGCATCGTCCACGGGCGGACCGCCCCGCCCACGACCTCGGCCGTCGCCTGGACCGGGAC 117656
                                                                                                                                                                                                                                                                                                                                                                                                               CCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAAGCGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCGGCTACGCGGTCGCCTACCTCGGCGGGGGCTCAAGGCCGGCGCGCCACCGTCCTTCACCT 117773
                                                                                                                                                                                                                                                            CCATTCAACGCTGCGGGCGGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGA 536
                                                                                                                                                                                                                                                                                                                                    CGACTACCTGGACGCGTTGCGGGGCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGG
                                                                                                                                                                                                                                                                                                                                                                         GCCGCTCGCCTCCCGGCCGACGAGCTCGAACGGCGTGCCCTGCAGTGCGAGC----TGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCCCCGACCTGTGTACGGCGAGTGGGACCGGCGCTCGGAGGCACTGGCCCGCGGGCT 117893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCGCGGCCGCACAAGCCGGGGCACCCGTATCGGCATCTTCTTCGGTGGCATGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCA 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAGTTGGTCGCCGCGCGGGCTGGTACCGGGACCAGTGGCTGCTCCAGG 1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGACCTCGACGAGATCGTGGTGCTCGACGCCGGCCGGGTGGTCCAGCGTGGCCGGCACGA 1748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US 60/278,935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0014;
.ches 750; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CALIFORNIA
GENE CLUST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 135638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLUSTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND ITS COMPONENTS AND THEIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                               656
                                                                                                                                                  117536
                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                 416
                                                                                                                                                                                                                                                                                                                                                                           117716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6,
```

```
Db 116701 GCTGGCGGCCACCCTCGCCGCTCACGCGAAGGACAGCCTCGCCCCCCCACGAGATCCCC 116644
                                                                                                                                                                                               Ş
                                                                                                                                                                                                              Db 116878 CTTCGACCGCGAGACCGACGCCGTGCCCACACCGGCCGGGCTCGTGTCGTCCCTG---CG
                                                                                                                                                                                                                                                                                                   Db 116938
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 117238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 117178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ė
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db .117355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                       116998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117118 CTTCGACCCGGCGCGCCCGATGTCGGCCGGCCGGCCGCCCCGGCACCCATGTACTGAT
                                                        1428
                                                                                                                                                                                                                                                                1248
                                                                                                                                                                                                                                                                                                                                                                                                      1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1074 GATGGACGAACCCGACGTG----CAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTC 1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1014
                                                                                                                                                                                                                                                                                                                                     1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        714 GCACATCGTGGCGGGGGGGGGGAAACCTTCCGCATCGGCCGAGCTGGACGTGCCGGT
                                                                                                       ACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCGGTCTG 1427
                                    GCCGGCCGGCGTGGCCGCGATCGTGCCCGCGGCCGGCGCGCACCCATGACCCGAAGCT 116702
                                                                                                                                         GTACTICGCCGACCIGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA 1367
                                                                                                                                                                                                                                              GGCGGATGGTGCGACACCGGCGACCTCGGCCACGTCGACGACGAGGGCGAGCTGTATCT 116879
                                                                                                                                                                                                                                                                                                                                                                                  CGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGGCACC---TTCCCGCG 1187
                                                                                                                                                                                                                                                                                                                                                                                                                     CACCGACGAGCACGGCGCGGAGCTGCCCGCCCATCGGGTCGGCCGGATCTGGCTGCGCGC 116999
                                                                                                                                                                                                                                                                                                               GETGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAA 1247
                                                                                                                                                                                                                                                                                                                                                  CGACGGCGCGCCCCCCCCAACCGCCTCGACGCGGGCCCGGAGGCCACCGGTGTCCCCGGA 11693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACCGCCTCGGCGTTCCTCCATCCCCCGCGCCCCGCGCCCTGTTGGCCGCGATGCCCCG 117179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCGCGTGATCGGCGCCTACTCGGCCAGCCAGGCCAAGCCCGCGGTGACCATCGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CIGGIGCAAGCCCIICCCCGAACIGAGCGGGCGCGACCIGGATGAAGICGCGGCCGAGCG 1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCGGCTCCACCATGCTCAAGCAGGACCGGGTGCTGCTGGCCGGACGCACCATCATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGT 893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCTCATCGAGCACCATGCGGCGAGCACCGTCATGATGACCCCGAACCTCGCCGTGCA 117296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCAACGCCACCCGACCACGCTCGTCCTCGCGCCGGCAGACGCCGACCGGCTGTG 117356
                                                                                                                                                                                                              116822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            773
```

US-09-836-821-7

IS-09-836-821-7

IS-EQUENCE 7, APPLICATION US/09836821

GENERAL INFORMATION:

APPLICANT: Sherman, D.H.

APPLICANT: LU, H.

APPLICANT: LU, H.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANT: Yue, Y.

APPLICANTON NUMBER: US/09/836,821

CURRENT APPLICATION NUMBER: 09/105,537

PRIOR APPLICATION NUMBER: 09/105,537

PRIOR FILLING DATE: 1998-06-26

NUMBER OF SEQ. ID NOS: 43

SOFTWARE: FastSEQ for Windows Version 3:0

SEQ ID NO 7

LENGTH: 1248

TYPE: DNA.

ORGANISM: Streptomyces venezuelae

and pikromycin

bng

pikromycin

Indels Length

12;

Gaps

'n

```
US-09-836-821-;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity Matches 439; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                1112
                                                                                                                                                                  1052
                                                   983 GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                         932
                                                                                                                                                                                                                                                                                                                           752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
                                                                                                                                                                                                                                                                                                                                                                           872
                                                                                                                                                                                                                                                                                                                                                                                             632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      632
                                                                                                                                                                                                                                                                                                                                                                                                                                               812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          332 GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   92
                     CGCGCCACCGCGACACGCCCCCCCCCCCCCCCTCG 1204
                                                                                  ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                    GCGTGCTGCCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCCCCGAACTGAGCG
                                                                                                                                                    CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                      CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCCGCTGCCGCACA
                                                                                                                                                                                    AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                      TOGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                         ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                              ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGGCCTCACCTCGCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCCCGGCGGCAGCCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCAGCGCGCCGCCACCGACGAAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCACCGACGACGCCGACCTCGCCGCCCGGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGCCTGCGCCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCTGGCAACCTGGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGGCAGCAACACCCCGGGGGCGGCGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCG 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 81.8; DB 32; Pred. No. 0.003; 0; Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                      1111
                                                                                                                                                                                                                        1051
                                                                                     117
                                                                                                                    982
                                                                                                                                                                                                                                                                                            991
                                                                                                                                                                                                                                                                                                                                                                                               751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     811
                                                                                                                                                                                                                                                                                                                                                                                                                                 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
              Š
                                                밁
                                                                           Š
                                                                                                              밁
                                                                                                                                               Ş
                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; LENGTH: 1248
; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-860-846-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-860-846-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 439; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FASTSEQ for Windows Version SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 7, Application US/09860846
GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: DNA encoding methymycin FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/860,846
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Liu, H. APPLICANT: Xue, Y. APPLICANT: Zhao, L.
                                              812
692 CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAAACCTTCCGCATCG
                                                                                                                752
                                                                                                                                                                                  692
                                                                                                                                                                                                                   512
                                                                                                                                                                                                                                                     632
                                                                                                                                                                                                                                                                     452 CCGTCAACGCCGCCTGTATGGTGGGCCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACT 511
                                                                                                                                                                                                                                                                                                                                              392 GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                              332 GCCTGGCGCTGGCGCACGCCAACCCGCCCCCCCCTGGACGTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 272
                                                                                                                                                                                                                                                                                                                         575
                                                                                                                                                                                                                                                                                                                                                                                                                                                  455 GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     395 CCGCCGCGCTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       335 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         215 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCGTCGCGCACGCCGCCGGCCTCACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCGCACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92 ACGGCAGCAACACCCCGGGGGGGGGGCGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCCG 151
                                  CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                    CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGATGGCGGCATCTACGCCA
                                                                                                    TGGGCCTCACCTCCACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                           TGCCCGGCGGCAGCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCCA
                                                                                                                                                                                                      TGCAGCGCGCCGCCACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                        TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                            AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.7%;
ilarity 44.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 81.8; DB 33;
Pred. No. 0.003;
0; Mismatches 542;
```

밁

Š 밁 S 밁 S 밁 S 밁 Š 밁 Ş

Š 밁 S 밁

811

751

691

451

574 391 514

631

33

454

271 394 334

274

751 871 691 밁

밁

문

```
S
                                     밁
                                                                                                                                                    밁
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                        日
                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Streptomyces venezüelae
US-09-861-289-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-861-289-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 43
SOFTWARE: FASTSEQ for Windows Version
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ ID NO 7
SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 7, Application US/09861289 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: DNA encoding methymycin and pikromycin. FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/861,289
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Sherman, D.H.
                               515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PPLICANT:
                                                     332 GCCTGGCGCCGCTGGCGCAACGCCAACCCGCCCCCCTGGACCTGCTGGACGAAGGCG 391
                                                                                                                 455 GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                             335
                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                      152 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1172 CGCGCCACCGCGACACGGCCCCGCCCCGCTCG 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGCCGCCTCACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92 ACGGCAGCAACACCCCGGGGGGGGGGGGGGGGGACCTGGGGGTGCGGGGGAGCGGCATCGCCG 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923 GCGTGCTGGTGGGCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    992 CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCCGCTGCCGCACA 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
ACATGACGCCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGCGGGCATCA 331
                                                                                                                                                                                                                                                                                                 TOGCGCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                            TCACCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGGGGCCGGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGGCCGCTCGCGGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xue, Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ľĺu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 81.8; DB 33;
Pred. No. 0.003;
0; Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   =
=
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
   574
                                                                                                                    514
                                                                                                                                                                                                                                            454
                                                                                                                                                                                                                                                                                                     271
                                                                                                                                                                                                                                                                                                                                                                 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          274
                                                                                                                                                                                                                                                                                                                                                                                                                         211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
```

```
US-09-988-384B-7
                                                                                                                                                                                                                                                                                                                                                                                                      US-09-988-384B-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
 Query Match
Best Local Similarity
Matches 439; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                        NUMBER OF SEQ ID NOS:
SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/09988384B GENERAL INFORMATION:
                                                                                                                                                                   CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: PCT/US99/14398
PRIOR FILING DATE: 1999-06-25
PRIOR APPLICATION NUMBER: US 09/105,537
PRIOR FILING DATE: 1998-06-26
                                                                                                                                                                                                                              TITLE OF INVENTION: DNA encoding methymycin FILE REFERENCE: 600.536US1 CURRENT APPLICATION NUMBER: US/09/988,384B CURRENT FILING DATE: 2001-11-19
                                                                               LENGTH: 1248
TYPE: DNA
ORGANISM: Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                    APPLICANT: Sherman, D.H. APPLICANT: Liu, H.
                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1172 CGCGCCACCGCGACACGGCCCCGCCCCGCTCG 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1052 CCGAACGCCTCGCCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        863 AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACGAGGTCATGGGCCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         872 ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        692 CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      575 AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG-----GCCGCCATGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCCCCCGCTGCCGCACA 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGCCTCACCTCCACGCGTTTCCCCGAGGTCATCGACCGGAACCGGCCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCAGCGCGCCGCCACCGACGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCCCGGCGGCAGCCCCGCCGGCGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGGTCATGCCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
Score 81.8; DB 37; Pred. No. 0.003; D; Mismatches 542;
                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                             pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        631
```

Conservative

0

44.28;

Length 1248; Indels

12;

Gaps

```
1172 CGCGCCACCGCGACACGGCCCCGCCCCGCTCG
                                                                          1112 ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGGCCGCGAACTGACCG
                                                                                                                                                         1052 CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                     983 GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                 923 GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                              863 AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                          992 CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGGCGCACGCCCCGCTGCCGCACA 105
                                                                                                                                                                                                                                                                        812 TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                                           932. ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                              872 ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGGCCACCACCGGCATCC 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  812
                                                                                                                                                                                                                                                                                                                                                         632 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  752 TGGGCCTCACCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            572 TGGCCAGCGGCGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCCA 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     692 TGCCCGGCGGCGGCCGCCGGGGACCAACATGAGCGAGGCGCGCCGCCGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             512 TGCAGCGGCGCCCACCGACGAGAAATCGCGGGCATGCGGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    632 TCACCGACGACGCGACCTCGCCGGCCCGGATCCGCCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         575 AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             392 GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCGCCACGCGGCGG 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   332 GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGAACCTGCTGGAACGAAGGCG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    455 GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGGCCTGCGGCCTGTACTTCGACG 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               272 ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       212 TCGCGCCCGGCTTCATCGACTCGCACGACGACGACGACGACTACCTGCTCAGGCGTCGCG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        335 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215 CCACCTGCAACGCCACGGCCGCGCTCCAGCTCCTCGCGCACGCCGCCGGCCTCACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92
                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCACATGCGCGACGAAGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCCTACCGCGAGCACCTCGCGGACCTCCCCGGGGGTCCTCGTCGCCGACCACGACCGCC 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGCAGCAACACCCCGGGGGCGCGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCG 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1171
                                                                                                                   982
                                                                                                                                                           1111
                                                                                                                                                                                                                                                                                                                           991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91
```

Search completed: May 11, 2003, 11:55:40 Job time : 3920 secs

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq length: 0 seq length: 2000000000
                                                                                                                                                                                      Match Length
                                                                                                                                                  100.0
                                                                                                                                                                                                        Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2185239 seqs, 1125999159 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  May 10, 2003, 23:54:40 ; Search time 395 Seconds (without alignments) 10022.818 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 gaattecaettgategegga......ceetgagetaegagaagett 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-009-782-1
1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N_Geneseq_101002:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIDS2/gcgdata/geneseq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2/gcgdata/geneseq/geneseqn-embl/NA1980
                                                                                                                                                                                    멂
                                                                                                                                                                                                                                                                                                                                                                                                             lata/geneseq/geneseqn-embl/NA1999.DAT:
                                                                        AAC91797
AAA15140
AAX53491
ABN24790
AAD17184
                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Jeneseqn-embl/NA1994.DAT:
Jeneseqn-embl/NA1995.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4370478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /NA1988.DAT
                                                                                                                                                                           Description
                                 Streptomyces
DNA encoding
                                                                                   DNA encoding an am
Human adenosine Al
Human ORFX polynuc
                                                                                                                     Alcaligenes xyloso
DNA encoding an am
Streptomyces nours
                                                                      Streptomyces
                                 Pseud
                                                                    nours
```

2444	<b></b>	0	0000	0,00
U FO SE	-0087654	3310087	10000000000000000000000000000000000000	110
22222		75. 75. 75.	79. 78. 78. 78. 76.	
~ ~ <del>-</del> ~ ~		, w w w w w w	ภัติมมันมันมัน	ထေထထထထတတ်
4444	444444		444446 10444466	444444477777777777777777777777777777777
150 138 138 367	158 158 42 42 52 52 116	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1320 3957 12249 18331 154746 154746 5970 12001	884 1095 12 12 124 136 136
			110224	•
AAQ91580 AAD14499 AAS51474 AAZ87297	AAT68715 AAZ87283 AAV68520 AAV10362 AAC90079 AAC32022 AAD14501	AATU6/69 AAA58471 AAT91361 AAT80413 AAN92408 AAQ22482 AAQ22484 AAQ22484	AAQ22481 AAA09686 AAC55840 AAC55857 AAD25519 AAD25519 AAA75635 AAQ76213	AAL40781 AAS08693 AAZ87286 AAD39044 AAZ87284 AAZ87319
474	58715 37283 37283 10362 10362 32022 32022	1361 1361 1471 1413 1413 1413 1413 1413 1413	55519 56219 56213	10781 10781 10785 108693 107286 19044 17284 197319
			,	
			•	
				•
S. clavuligerus cl Streptomyces clavu Pseudomonas aerugi S. venezuelae macr	Stre S. v The Infe LO53 Huma	Sorangi Nucleot Orf vir Tylacto Sequenc groEL-1 gro es	groel- HSV-2 Comple Comple Human Human Nucleo Contig	8842 Micr S. v Stre S. v
clavuliger eptomyces udomonas a venezuelae	Streptomyces ve S. venezuelae v The nucleotide Infected cell p L05390 cDNA clo Human METHI rel	Sorangium of Nucleotide Ouf virus 9 Tylactone s Sequence en groef el correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira sorania de la correira del correira de la correira del correira de la correira de la correira de la correira de la correira de la correira de la correira de la correira de la correira del correira del correira de la correira del correira de la correira de la correira del correira de la correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira del correira	groEL-1 general Market MSV-2 immed Complete nu Human herpe Human herpe Human herpe Nucleotide Contig 002 HSV L/ST re	88421nt genomi Micromonospora S. venezuelae v Streptomyces v S. venezuelae S. venezuelae
lige yces nas	yces venetuelae venetide cell plua clo	de se sy enc	gene	Int genom: omonospore enezuelae ptomyces o enezuelae enezuelae
S. clavuligerus cl Streptomyces clavu Pseudomonas aerugi S. venezuelae macr	Streptomyces venezuelae vep S. venezuelae vep The nucleotide seq Infected cell prot L05390 cDNA clone. Human METH1 relate Streptomyces clavu	um cellulos ide sequenc us genomic ne synthase e encoding gene codin el operon	groEL-1 gene parti groEL-1 gene parti Complete Mitomycin Complete mucleotid Complete nucleotid Human herpesvirus Human herpesvirus Nucleotide sequenc Contig 002 from co	8421nt genomic DN 1cromonospora DNA . venezuelae deso treptomyces venez . venezuelae deso . venezuelae deso treptomyces venez
lavu lavu macr	seq seq orot one. ate	80 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	onc bis crti	LC DN 1 DNA deso deso deso deso

## ALIGNMENTS

AAC91797 standard; DNA; 1758 BP.

AAC91797;

```
WPI; 2001-080828/09.
P-PSDB; AAB48975.
                                           Takeuchi K, Koide Y,
                                                                                             17-JUN-1999;
                                                                                                                    15-JUN-2000; 2000WO-JP03932.
                                                                                                                                                                      WO200078926-A1.
                                                                                                                                                                                             Alcaligenes xylosoxidans.
                                                                                                                                                                                                                            D-aminoacylase; zinc tolerant host; recombinant production; zinc-enhanced expression; D-form amino acid synthesis; antibiotic production; peptide drug; pharmaceutical manufac
                                                                                                                                                                                                                                                                             Alcaligenes xylosoxidans subspecies xylosoxidans D-aminoacylase DNA.
                                                                    (AMAN-) AMANO ENZYME INC
                                                                                                                                               28-DEC-2000.
                                                                                                                                                                                                                                                                                                           27-MAR-2001
                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                             99JP-0170555
                                            Hirose Y,
                                          Moriguchi M,
                                                                                                                                                                                                                               pharmaceutical manufacturing;
                                        Isobe K;
```

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                           Matches 1758;
                                                                                                                                                                                                                                                                                                                                                          The invention relates to a recombinant zinc-tolerant microorganism which expresses the D-aminoacylase from Alcaligenes xylosoxidans subspecies xylosoxidans. The presence of zinc ions in the culture medium enhances the process of recombinantly producing the D-aminoacylase gene, and the invention also relates to microorganism of the invention. The recombinant microorganism is used for the selective production of D-aminoacylase, which is useful in the production of injection of D-aminoacylase, which is useful in the production of antibiotics and peptide drugs. The present sequence subspecies xylosoxidans.
                                 601
                                                          541
                                                                      541
                                                                                    481
                                                                                                481
                                                                                                                          421
                                                                                                              421
                                                                                                                                        361
                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                 301
                                                                                                                                                                               301
                                                                                                                                                                                            241
                                                                                                                                                                                                        241
                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transformed microorganism from zinc-tolerant host for selective production of D-aminoacylase, useful in synthesis of high optical-purity D-amino-acids for antibiotic side-chains and pepidrugs -
                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                          TCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAAATC
                                                                                                      TACCTGGACGCGTTGCGGGCCACGCCGGCCGCCGTCAACGCCGCCTGTATGGTGGGCCAT
                                                                                                                                ACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAACCCG
                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                   BP;
                                                                                                                                                                                                                                                                                                                                                    281
                                                                                                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                             22pp;
                                                                                                                                                                                                                                                                                                                                                   A; 662
                                                                                                                                                                                                                                                                                                                                                                                                                                            Japanese.
                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                   Ç
                                                                                                                                                                                                                                                                                                                              Score 1758;
Pred. No. 5
                                                                                                                                                                                                                                                                                                                                                   568
                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                 G; 247
                                                                                                                                                                                                                                                                                                                              DB 22;
.8e-267;
                                                                                                                                                                                                                                                                                                                                                 Τ,
                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                 other;
                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                             and peptide
                                                                                                                                                                                                                                                                                                                    Gaps
             720
                         660
                                      660
                                                    600
                                                                             540
                                                                                           540
                                                                                                                    480
                                                                                                       480
                                                                                                                                  420
                                                                                                                                               420
                                                                                                                                                            360
                                                                                                                                                                        3,60
                                                                                                                                                                                      300
                                                                                                                                                                                                  300
                                                                                                                                                                                                               240
                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                     0
               Š
                             밁
                                          Ş
                                                       뮍
                                                                   Ş
                                                                                  밁
                                                                                             Ş
                                                                                                           밁
                                                                                                                       Ş
                                                                                                                                      멂
                                                                                                                                                δÃ
                                                                                                                                                                밁
                                                                                                                                                                           ğ
                                                                                                                                                                                           밁
                                                                                                                                                                                                     Š
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
               1741
                                                      1621
                                          1681
                                                                    1621
                                                                                 1561
                                                                                              1561
                                                                                                           1501
                                                                                                                        1501
                                                                                                                                     1441
                                                                                                                                                 1441
                                                                                                                                                               1381
                                                                                                                                                                             1381
                                                                                                                                                                                         1321
                                                                                                                                                                                                      1321
                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                             1201
                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                         1021
                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
           CTGAGCTACGAGAAGCTT
                              TCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCCAGATCGCC
                                                CGCTACATGGCCCTCCCTCCGCTCGCAATACGGCCCGACCCGATATCGTGGGCAAGGAA
                                                                                                    TATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTG
                                                                                                                                                                                                                                                               CCGCACGACGACGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCAC
                                                                                                                                                                                                                                                                                        ATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGGAGCTGGACGTGCCGGTGGTGATC
```

S

1740 1740 1680 1680 1620

1560

1440 1380 1380 1320 1320

1200

1140

1140

1020 1020

960 960 900 900 840 840 780

1080 1080

Ş ₽

문 Ş 문 Š 밁 S 밁 Ş 문 Ş 밁 Š 밁 Ş 밁 Ş 문 Ş 밁 S

270 243

```
닭
                                       Ş
                                                                                                                                                            밁
                                                                     Ş
                                                                                         В
                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 2
AAA15140
                                                                                                                          Query Match
Best Local Similarity
Matches 1449; Conserv
                                                                                                                                                                             The present sequence encodes an aminocyclase enzyme. The enzyme is capable of hydrolysing N-acetyl-D-tryptophan at a substrate concentration of 10 grams per litre, and exhibiting faster convers of R-N-acetyl-2-thienylalanine than of R-N-acetyl-4-chlorophenylalanine. The enzyme can be used for the preparation of a D-amino acid by conversion of a corresponding D-N-acylamino acid. It can also be used for resolving a racemic N-acylamino acids. The D-amino acids are useful as intermediates the production of various pesticides, antibiotics and other
                                                                                                                                                           Sequence 1473 BP;
                                                                                                                                                                                                                                                                                           New isolated D-amino acylase enzyme, useful for the preparation D-amino acids for use as intermediates in the preparation of pesticides, antibiotics and other pharmaceuticals
                      124
                                                                                                                                                                                                                                                                                   Claim
                                                                                                                                                                                                                                                                                                                                   WPI: 2000-339697/29.
P-PSDB; AAY84943.
                                       151
                                                                                                                                                                                                                                                                                                                                                                                              20-OCT-1998;
01-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                          (CHIR-) CHIROTECH TECHNOLOGY LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aminocyclase; N-acetyl-D-tryptophan; R-N-acetyl-2-thienylalanine; R-N-acetyl-4-chlorophenylalanine; D-amino acid; N-acyl amino acid; pesticide; antibiotic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                         20-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200023598-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alcaligenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA encoding
                                                                                  AAA15140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAA15140 standard;
                                                         64
                                                                        91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-AUG-2000
                                                GACGGCAGCAACACCCCGGGGCGGGGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCC
                     GCCATCGGCGATCTGTCGGACGCCGCCGCCACACCCGGGTCGACGTGTCGGGCCTGGTG
                                                                                                                                                                                                                                                                              7; Page 18-20; 26pp; English.
                                                                                                                                                                                                                                                                                                                                                           SJC, Brown
                                                                                                                        81.9%;
ilarity 99.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ďs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   an aminocyclase enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                             98GB-0022947.
99GB-0007739.
                                                                                                                                                                                                                                                                                                                                                                                                                      99WO-GB03458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= a
/product= "aminocyclase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
7..1461
/*tag= a
                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                            S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA;
                Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entry)
                                                                                                                                                           559
                                                                                                                      Score 1440.6; DB 21; Length Pred. No. 2.9e-217; 0; Mismatches 14; Indels
                                                                                                                                                          ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                         481
                                                                                                                                                       G; 206 T; 0 other;
                                                                                                                                                                                                                                           conversion
                                                                                                                    0,
                                                                                                                                                    .
                                                                                                                    Gaps
                                210
                 183
                                                 123
                                                                   150
                                                                                    63
                                                                                                    90
                                                                                                                                                                                         'n
                                                                                                                     0
                      밁
                                     Š
                                                         밁
                                                                      Š
                                                                                         닭
                                                                                                         Š
                                                                                                                          밁
                                                                                                                                         δÃ
                                                                                                                                                            밁
                                                                                                                                                                             Ş
                                                                                                                                                                                              유
                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                닭
                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                          뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
      1291
                      1204
                                                        1144
                                                                        1171
                                                                                         1084
                                                                                                           1111
                                                                                                                          1024
                                                                                                                                           1051
                                                                                                                                                            964
                                                                                                                                                                             991
                                                                                                                                                                                              904
                                                                                                                                                                                                               931
                                                                                                                                                                                                                                844
                                                                                                                                                                                                                                                871
                                                                                                                                                                                                                                                                  784
                                                                                                                                                                                                                                                                                  811
                                                                                                                                                                                                                                                                                                   724
                                                                                                                                                                                                                                                                                                                   751
                                                                                                                                                                                                                                                                                                                                     664
                                                                                                                                                                                                                                                                                                                                                     691
                                                                                                                                                                                                                                                                                                                                                                      604
                                                                                                                                                                                                                                                                                                                                                                                       631
                                                                                                                                                                                                                                                                                                                                                                                                       544
                                                                                                                                                                                                                                                                                                                                                                                                                        571
                                                                                                                                                                                                                                                                                                                                                                                                                                         484
                                                                                                                                                                                                                                                                                                                                                                                                                                                         511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  271 GACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTĆGTCACGGGCAATTGCGGCATC
GGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGTTCGTCTTCGACCCGGCCACGGTGGCC
                TGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTG
                                                                                   GGCCCGACCATGATCGGCTCCGACGGCCTGCCGACGACGAGCGCCCGCATCCGCGCCTG
                                                                                                                    CTGGATGAAGTCGCGGCCGAGCGCGGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAG
                                                                                                                                                                                                                        TCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTG
                                                                                                                                                                                        CTGGCCGGACGCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGAC
                                                                                                                                                                                                  CTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCCGAACTGAGCGGGCGCGAC
                                                                                                                                                                                                                                                           ACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                ACCCACATGCGCGACGAACGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTTCGTACCGCTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCTCTTACCGTTTCGAGGGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGC
```

1230 1203 1290 1170 1143

990 963 1050 1023 1110

930

810 783 870 843 750 723 570 543 630 603 690

483

```
PAXRAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
non-coding regions of RNAs corresponding to target genes, gene initiation codons, genomic flanking regions, intron-exon borders, the 5'-end, the 3'-end and the juxta-section between coding and non-coding or more diseases, conditions or mixtures. The antisense oligonucleotides or may be derived from sequences AAX5572-74. These multiple target antisense treatment of diseases and conditions. Typical diseases and inflammation, including lung diseases, pulmonary vasoconstriction, including lung diseases, pulmonary vasoconstriction, impedel
                                                                                                                                                                                  The specification describes antisense oligonucleotides (AAX52869-X55271) directed against at least 2 mRNAs selected from target genes, coding and
                                                                                                                                                                                                                                              Disclosure; Page 37; 120pp; English.
                                                                                                                                                                                                                                                                           New antisense oligonucleotides used in treatment of, e.g. pulmonary vasoconstriction
                                                                                                                                                                                                                                                                                                                                         WPI; 1999-229400/19
                                                                                                                                                                                                                                                                                                                                                                                                                                            09-JUN-1998;
17-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antisense oligonucleotide; multiple target; antisense treatment; impaired respiration; inflammation; lung disease; pulmonary vasoconstriction; inflammation; allergic rhinitis; acute asthma; allergy; asthma; impeded respiration; respiration; pulmonary distress syndrome; pain; cystic fibrosis; pulmonary hypertension; pulmonary vasoconstriction; emphysema; chronic obstructive pulmonary disease; leukemia; lymphoma; carcinoma; colon cancer; breast cancer; lung cancer; panoreatic cancer; hepatocellular carcinoma; kidney cancer; melanoma; hepatic metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                           (UXEC-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              W09913886-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human adenosine Al receptor antisense oligonucleotide fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAX53491 standard; DNA; 114955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAX53491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCACGCACGGCCGCCTGAGCCCG 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACGCACGGCCGCCTGAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EAST CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first
                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0093972.
97US-0059160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98WO-US19419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1323
```

```
Db 104376
                                                Ş
                                                                                 밁
                                                                                                                Ş
                                                                                                                                                   밁
                                                                                                                                                                                δÃ
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                 Db 104671 GCCCVGCGGNNHNNNSCGGCGCGCGCCVGGCCGGNNHNNNSGCGGCGCCCCVG--GC
                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db 104851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   გვვვვა
                                                                                                                                                 104493
                                                                                                                                                                                                                   104553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104791
                                                                                                                                                                                                                                                                                                                                                                                                                   104731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105211 GGCGGCGCCCNNHNNNSCGGCCCGGCCGGCGCGCCCVNNHNNNSCGGCCCGGCCG
                                                  948
                                                                                                                                                                                                                                                  768
                                                                                                                                                                                                                                                                                                                                                                                                                                                    588
                                                                                                                                                                                                                                                                                                                  708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas e.g. colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, as well as all types of cancers which may metastasize or have metastasized to the lungs, including breast and prostate cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170 ACG--CCGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGGCCCGGCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110 GGCGGCGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCCCATCGGCGATCTGTCGG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 114955
CCCGGCCGGCGCGCCCCVGGCCVGCGGNNHNNNSGCCCGGCCGGCCGGCGCGCGCGCCCVGGC
                               CGCCCVGGCCVGCGGNNHNNNSC----CGGCCGGCGCGCGCCCVGGCCGVGCGGNNHNNNS 104377
                                                                                               CTACGTGGCCGGCTCCACCATGCTCAAGCAGGACGGCGTGCTGCTGGCCGGACGCACCAT
                                                                                                                                GCCVGCGGNNHNNNSGGCCGGCGCGCGCGCCCVGGCCVGCGGNNHNNNSCGGCCGGCGGCG
                                                                                                                                                                GACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCC
                                                                                                                                                                                                                               GCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGA 827
                                                                                                                                                                                                                                                                CVGCGGNNHNNNSGGCGGCGCGCCCVGGCCVGGCGNNHNNNSCGGCGGCGCGCCCVGGCC 104554
                                                                                                                                                                                              VGCGGNNHNNNSCCGGCGCGCGCCCVGGCCVGCGGNNHNNNSGCCGGCGGCGCGCCCVG 104494
                                                                                                                                                                                                                                                                                               AGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ocal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                SCGCGCCCVGGCCVGCGGNNHNNNSGCGCGCCCVGGCCVGCCGGNNHNNNSGGCGCGCCCV 104672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCVGCGGNNHNNNSCGCCCVGGCCVGCGGNNHNNNSGCGCCCVGGCGCNNHNNN 104732
                                                                                                                                                                                                                                                                                                                                                                 CGGCATTTCGACCGGCGCCTTCTACCGGCCGCCGCCGCGCGCCACCACCGAAGAGATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCCATGGCCAGCGGCGCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCVGCGGNNHNNNSCCVGGCCVGCGGNNHNNNSCCCVGGCCVGCGGNNHNNNSGCCCV 104792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGCGCCCVGGCCVGCGNNHNNNSGGCCVGCGGNNHNNNSVGGCCVGCGGNNHNNNSCV 104852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCGTCAACGCCGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CVGNNHNNNSCGGCCCGGCCGGCGCGCGCCCVGGCCVGCNNHNNNSCGGCCCGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCACGCCAACCCGCCCCCCCCCCGGGACCTGCACGAAGGCGGCTCTTACCGTTTCGA 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GECCCGGCCGGCGCGCCCVGGCCVNNHNNNSCGGCCCGGCCGGCGGCGCGCCCVGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACTCGCACACCACGACGACGACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGCGGCGCCCCVGGCNNHNNNSCGGCCCGGCCGGCGGCGCCCCVGGCCNNHNNNSC 105032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGCGCCCCVGNNHNNNSCGGCCCGGCCGGCGGCGCGCCCVGGNNHNNNSCGGCCCGG 105092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP; 6071 A; 29417 C; 36712 G; 21328 T; 21427 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.9%;
31.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 103; DB 20;
Pred. No. 4.2e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 114955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9;
                                                                                                                                                                  887
                                                                                                                                 104434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    587
                                                                                                                                                                                                                                                                                                                                                                                                                                  647
                                                                                                                                                                                                                                                                                                                                 104614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105152
```

```
RESULT 4
ABN24790
ID ABN2
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104018 NNHNNNSGCCCGGCCCGACGCCCAVNNHNNNSGCCCGGCCCGACGCCCCAVGNNHNN 103959
                                                                                                                                                                                                                                                                                                                                                                                                                    103658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   103778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104316
                                                                                                                                            Human; open reading frame; ORFX; gene therapy; cancer; cirrhosis; hyperproliferative disorder; psoriasis; benign tumour; haemorrhage degenerative disorder; osteoarthritis; neurodegenerative disorder; cardiovascular disease; diabetes mellitus; systemic lupus erythema
                                                                                                                                                                                                                              Human ORFX polynucleotide sequence SEQ ID NO:18057.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1428
06-DEC-2001.
                              WO200192523-A2
                                                          Homo sapiens.
                                                                                      myasthenia gravis; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1488
                                                                                                          autoimmune
                                                                                                                   hypertension; hypothyroidism; cholesterol ester storage disease; immune deficiency; immune disorder; infectious disease;
                                                                                                                                                                                                                                                                  24-JUN-2002 (first entry)
                                                                                                                                                                                                                                                                                                     ABN24790
                                                                                                                                                                                                                                                                                                                                  ABN24790 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1008
                                                                                                                                                                                                                                                                                                                                                                                                          CGGCCGCGCNNHNNNSGACGGCCGCGCNNHNNNSVGACGGCCGCGCNNHNNNSAVGA 103602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCAVGACGCCGCNNHNNNSGCCCGGCCCGACGCCGCCAVGACGCCGCGNNHNNNSA 103659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NSGCCCGGCCCGACGCCAVGANNHNNNSGCCCGGCCCGACGCCCAVGACNNHNNN 103899
                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCCAAGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTGGGCAAGGAAGTGATGGGCGCGCGCCCTGCGCGCCGAGCGCAAAGGCCCCGGAAAATGAC 1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCNNHNNNSGCCCGGCCGACGCCGCCAVGACGGCCGNNHNNNSGCCCGGCCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGACGCAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATAT 1607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NNNSGCCCGGCCCGACGCCAVGACGGCNNHNNNSGCCCGGCCCGACGCCGCCAVGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SGCCCGGCCCGACGCCAVGACGNNHNNNSGCCCGGCCCGACGCCGCCAVGACGGNNH 103839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACACCCTACCGAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGCCGCNNHNNNSGCCCGGCCCGACGCCCNNHNNNSGCCCGGCCCGACGCCGCCA 104019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGGCGGCAGCTGCAGGCCGG 1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NNHNNNSGCCCGGCCCGACGCCNNHNNNSGCCCGGCCCGACGCCGNNHNNNSGCCCGGCC 104079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAA 1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NNHNNNSGCCCGGCCCGACNNHNNNSGCCCGGCCCGACGNNHNNNSGCCCGGCCCGACGC. 104139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCGACGGCCTGCCGCACGACGAGCGCCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCG 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGGCGCCCVGGCCVGCGGNNHNNNS--GCCCGGCCCGNNHNNNSGCCCGGGCCCGA 104199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGGTTCGGCCCGACCATGATCGG 1127
                                                                                                       disorder; rheumatoid arthritis;
                                                                                                                                                                                                                                                                                                                                CDNA;
                                                                                                                                                                                                                                                                                                                                  312
                                                                                                    thyroiditis;
                                                                                                                                                                               haemorrhage;
                                                                                                                                                 erythematosus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      103779
```

```
밁
                                                                           Ş
      밁
                         Š
                                                                                                    밁
                                                                                                                         Ş
                                                                                                                                                    밁
                                                                                                                                                                         Ş
                                                                                                                                                                                                    片
                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                  Matches 175;
                                                                                                                                                                                                                                                                         Query Match
                                                                                                                           749
                                                                                                                                                                           689
      242
                                                                                                    122
                                                                                                                                                                                                                     629 CCACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCGTTGGCGGCATCTACG
                                                                                                                                                    62
                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                   N
TGGGTTGCGACTGCTATCCGTACACCGCAAGCTCGTCCACGCTGGACCTCAAGCAGGTG
               TCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGGAGGACGGCGTG 927
                                             ATTGGGGCCGCGGGCGAGGTGCTGGAATCCATCGAAGGTGCACAGTGCTATCAGCCGG
                                                              ATTTCGGCCGCTCGCGCGAGACGCCTGCCGCTGATCGAGGCCGCCATGGCGCCCAGGACG
                                                                                                                    TCGGCCGCGAGCTGGACGTGCTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCA 808
                                                                                                                                                                    CGACCACCGAAGAAGTGATGGGCCTGGCGGAGCCGCCGAAGCTGGCGCGATCTACA 61
                                                                                             TCGGCAAACATGCGCGCGTGCCGGTGGTGATCTCACACCTGAAATGCGCAGGCGCTGCCA 181
                                                                                                                                             Similarity
                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                          58.58;
                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                           Score 101.2;
Pred. No. 1.6
                                                                                                                                                                                                                                                Mismatches 124;
                                                                                                                                                                                                                                                          1.6e-07
                                                                                                                                                                                                                                                                     DB 24;
                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                            Gaps
 300
                                               241
                                                                       868
                                                                                                                                               121
                                                                                                                                                                                                                      889
```

useful for treating burns, inclsions, ulcers, for treating osteoporosis bone degenerative disorders, or periodontal disease, and for gut protection or regeneration and treatment of lung or liver fibrosis, reperfusion injury in various tissues and conditions resulting from systemic cytokine damage. transplantation, cardiovascular diseases, diabetes mellitus, systemic lupus erythematosus, hypertension, hypothyroidism, cholesterol ester storage disease, various immune deficiencies and disorders, infectious disease, autoimmune disorders such as multiple sclerosis, rheumatoid arthitis, autoimmune thyroiditis, myasthenia gravis, graft-versus-host disease and autoimmune inflammatory eye disease. ORFX proteins are also mosful for traction have a lisease and autoimmune inflammatory eye disease. Sequence 312 BP; 62 A; 92 C; 105 G; 52 T; 1 other; N.B. The sequence data for this patent did not form specification, but was obtained in electronic format treating or preventing a pathology associated with an OREX-associated disorder in humans, and in the manufacture of a medicament for treating syndrome associated with OREX-associated disorder. OREX polynucleotide sequences can be used in gene therapy. OREX sequences can be used in the treatment of cancer, hyperproliferative disorders, cirrhosis of liver, psoriasis, benign tumours, keloid, degenerative disorders, haemorrhage, osteoarthritis, neurodegenerative disorders, disorders related to organ (referred to as open reading frame, ORFX, where X is 1-11491 (see Talin the specification). ABN15762 to ABN27252 encode the human ORFX proteins given in ABP00010 to ABP11500. ORFX proteins are useful for Novel human polypeptides and polynucleotides useful for diagnosing, preventing and treating cardiovascular disease, neurodegenerative, hyperproliferative disorders and autoimmune disorders Disclosure; SEQ ID 18057; 1037pp; English. 30-MAY-2000; 29-AUG-2000; WPI; 2002-106308/14. (CURA-) CURAGEN CORP. 29-MAY-2001; ttp.wipo.int/pub/published\_pct\_sequences. present invention ABP09038 2000US-206132P. 2000US-228716P. 2001WO-US10836. Leach ð describes substantially purified human part of the printed directly from WIPO

be used in the

proteins see Table

AAD17184

```
(UYNO-) UNIV NORGES TEKNISK NATURVITENSKAPELIGE.
(SNTF ) SINTEF.STIFTELSEN IND TEK FORSK.
(ALPH-) ALPHARMA AS.
                                                                  08-FEB-2000;
10-APR-2000;
                                                                                                    08-FEB-2001;
                                                       14-APR-2000;
                                                                                                                            16-AUG-2001.
                                                                                                                                                  WO200159126-A2.
                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                 Sgo
                                                                                                                                                                                                                                                                                                                                                                                      Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptomyces noursel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polyketide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAD17184;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAD17184 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-NOV-2001
                                                  2000GB-0002840.
2000GB-0008786.
2000GB-0009387.
                                                                                                  2001WO-GB00509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          synthase; PKS; macrolide; nystatin; PKS gene cluster;
; antibiotic; nysl; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              noursei nysi DNA of nystatin PKS gene cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                               /note= "CDS does not include 63765..64961
                                                                                                                                                                   /product= "ORF1 protein"
                                                                                                                                                                                                                                           /product= "NysR5 protein"
/note= "CDS does not include complement (62551..63615)
                                                                                                                                                                                                                   'product= "ORF2 protein"
                                                                                                                                                                                                                                                                                                'product= "NysR4 (short) protein"
'note= "CDS does not include start codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                     o..62497
                                                                                                                                                                                                                                                                                                                                                                                                                                   g= g
duct= "NysRi protein"
                                                                                                                                                                                                                                                                                                                                                      uct- "NysR3
                                                                                                                                                                                                                                                                                                                                                                                            CDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          luct- "NysE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       duct= "NysD2 partial protein"
e= "CDS does not include stop
lement (1056..2576)
                                                                                                                                                                                                                                                                                                                                                                                                      uct- "NysR2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..54305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                luct- "NysA protein"
                                                                                                                                                                                                                                                                                                                                              .61047
                                                                                                                                                                                                                                                                                                                                                                                .59963
                                                                                                                                                                                                                                                                                                                                                                                                                              .57190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uct- "Nysc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           - d
uct= "NysB protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .16530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..51015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .49840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 6906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ,"NysD1 protein"
                                                                                                                                                                                                                                                                                                                                                                                          does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein"
                                                                                                                                                                                                                                                                                                                                                     protein"
                                                                                                                                                                                                                                                                                                                                                                                   protein"
not include start codon"
                                                                                                                                                                                                       start
                                                                                                                                                                                                                                                     start
                                                                                                                                                                                                     codon a
                                                                                                                                                                                                                                                    codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon "
```

```
밁
                                                               Qy
                                                                                            문
                                                                                                                    á
                                                                                                                                               문
                                                                                                                                                                        Ş
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                   20058 CCCGCGAGGTCCCCGCCGACGCACCGGCGCGCCGCCACCGTCCACCGCGACTCCCTCT
                                                                                                                                                                                                                                                    19998
                                                                                                                                                                                                                                                                                                         19938
                                                                                                                                                                                                                                                                                                                                                            19878
                                                                                                                                                                                                                                                                                                                                                                                                                                                 19758 CCTGGCGCGCGACACCGAGGTCTACGCCGAAGTGGCCCTGCCCGACGGCGCGGACACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19698 ACGAGCGCCTGGCCACTCGGCTTCCAGTACGGCCCCGCCTTCCAGGGCCTGCGCGCCG 19757
662 CGCTGAGCGCGATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCG
                                                                                                                     542
                                                                                                                                                                                                                                                                                                                                                                                                               19818
                                                                                                                                                                        482
                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to the cloning and sequencing of the cluster encoding a modular type I polyketide synthase (PKS) enzyme involved in the biosynthesis of the macrolide antibiotic nystatin. The nystatin PKS is useful as antifungal antibiotics. The present sequence is a Streptomyces noursel nysl DNA of nystatin PKS gene c
                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 65140 BP; 8270 A; 25171 C; 22273 G; 9426 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New nystatin polyketide synthase polynucleotides and polypeptides, useful as antibiotics and antifungals -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-557614/62.
P-PSDB; AAE10125, AAE10126, AAE10127, AAE10128, AAE10129, AAE10130, AAE10131, AAE10132, AAE10133, AAE10134, AAE10135, AAE10136, AAE10137.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zotchev
Valla S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SINV-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (STRO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (FJAE/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SEKU,
                        CCGCCCCCCGCGACCTGGCCGCCCTCGCCGACGCCGAAGGGCCCGTCCCCGACCTGGTCG
                                                   GCGCCTTCTACCCGCCGCGCGCCGCGCGACCACCGAAGAGATCATCGAGGTGTGCCGGC
                                                                            TCCTCGGCCCGACCCGGACGCCCTCGCCGACACCCTCCGCGCCACCGGCATCCGGACCA
                                                                                                    CGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCG
                                                                                                                                TCCACGTCGAGTGGACCCCGCTCCAGGGCCGCCCGGGCCCCGCACCGGCCACCGTCGCCG
                                                                                                                                                        CAACGCTGCGCGCCGGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAAATCG
                                                                                                                                                                                                            ACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCTCAACGCCGCCTGTATGGTGGGCCATT
                                                                                                                                                                                                                                     TCACCATCGCCGTCTACGACGCCGCCGGCGCACCGTGCTGTCGCTCGACTCCCTGGTCT 20057
                                                                                                                                                                                                                                                                                        TOSCOGCOGCOGCOCACCACCGTCCGCGCCCGGATCGCCCCGGCCGGCGAGGACACCG 19997
                                                                                                                                                                                                                                                                                                                  CCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGGCGCACGCCAACCCCGC
                                                                                                                                                                                                                                                               CCGCCCCCTGGACCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACT
                                                                                                                                                                                                                                                                                                                                                                     ACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCA 301
                                                                                                                                                                                                                                                                                                                                           ACGCCGACCTCGGCGCCATCAGCCGGCGGCGGCCTGCCGTTCGCCTGGGAAGGCGTCTCGC 19937
                                                                                                                                                                                                                                                                                                                                                                                                                       ACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCC 241
                                                                                                                                                                                                                                                                                                                                                                                                ACCCCGCCGTTCGGACTGCACCCGGCCCTGCTGGACGCCGCACAACACGCCGCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / SB, Sc...s.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEKUROVA O N.
FJAERVIK E.
BRAUTASET T.
STROM A R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DZIEGLEWSKA
ZOTCHEV S B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Page 116-151; 266pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SINVENT AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sekurova OK
lingsen TE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.68;
43.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ON, Fjaervik
E, Sletta H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 99.2; DB 22;
Pred. No. 1.8e-07;
0; Mismatches 913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E, Brautaset T, Gulliksen O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Strom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                           20297
                                                    661
                                                                             20237
                                                                                                                                                                                                            481
                                                                                                       601
                                                                                                                               20177
                                                                                                                                                         541
                                                                                                                                                                                   20117
                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                 19877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                   19817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ģ
```

Ş

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멼
21300 TGACCCTGGAACAGGGCACCGCCCTCTTCGACGCGGCCCTGGCC 21343
                                                                                                                                                                                                                                                                        21060
                                                                                                                                                                                                                                                                                                                                      21000
                                                                                                                                                                                                                                                                                                                                                                                                       20940
                                     1673
                                                                                                      1616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20478 GCCTGATCCGCACCGCCGCACCGAGAACCCCGGCCGTTTCGCCCTCCTCGACCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20298 TCACCACCTCACCACCACCACGGGCGCGCCCCGTCCCCGACGCCGCACGCCACCACCACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   722 TGGCCGCGCTGGAGGAAAACCTTCCGCATCGGCCGGAGCTGGACGTGACGTGATCT
                                AAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCC
                                                                                                                                                          CARACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCA 1615
                                                             TGACAAGCAGCCTGTCCGACCTCGACGTCGAGCGCATCGCCCGCTCCGGCATGCCCCCGC
                                                                                          AGGAAGTGATGGGGGGGGCGCGGGGGGGGGGAAGGGCCG---GAAAATGACCCTGC
                                                                                                                             CCGCCACCGGCCTGCCCACCTCCCTCGCCTGGGGCCCGTGGACCCAGAGCGTCGGCA
                                                                                                                                                                                            CCGGACAGGCCAACTACGCCGCCGGCAACGCCTTCCTGGACGCCCTCGCCGCCGGCGCG
                                                                                                                                                                                                                           CCTTAC-----AATCCGCCGTGAACGGGGGGGGGGGCGCCCCCCCCAACCCGGGACG
                                                                                                                                                                                                                                                          GCCTGGACACCGTCCTGCGGCCCAAGGCCGACGCCGCCTGGCACCTGCACGAGGCGACCC
                                                                                                                                                                                                                                                                                         TCGTCGTCCACACCGGCGGCGTCGTCGACGACGACGGCGTCCTCGGCTCCCTCACCCCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                          TGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGC-----CCTCGCCGACCTGCTCGGCACCGTCCCGGGCCACCCGGCTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCCGCGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAACTCACCGGGCTCGGCGCCACCGTCCACATCGCCGCCTGCGACGTCGCCGACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGA 1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCACCTGCTGCTCGCCAGCCGCCGGCCGGCCGGCCGACGGCGACGACCTGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCACCGGCGGCCTGGG----CGCGGTCCTCGCCCGCCACCTGGTCGCCACCCCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAAGTACGACGTGGTGCCGAGCTGCAGCCGGCCGGCGCATCTACTTCATGATGGACG 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCCGCTCGCCACCGAACCCACCTGGAACCCGGACGGCACCGTCCTGATCACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGACGAGCCGACCTCGCGTCCGCGGCACCGACGTGCACGCCGCCCGGCCTGGCCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGACACCCGGCCGGCCGACCCCGAGACCCTGGC-----CACCGCCCTGGCCGCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAAT 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACCATGCTCAAGCAGGACCGCGTGCTGCTGCCGGACGCACCATCATCACCTGGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1716
                                                                                          1672
                                                                                                                             21239
                                                                                                                                                                                            21179
                                                                                                                                                                                                                           1555
                                                                                                                                                                                                                                                            21119
                                                                                                                                                                                                                                                                                           1501
                                                                                                                                                                                                                                                                                                                           21059
                                                                                                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                                                               21299
                                                                                                                                                                                                                                                                                                                                                                                             20999
                                                                                                                                                                                                                                                                                                                                                                                                                                                              20939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2065]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20357
```

맑 S

밁 S 밁 S 밁 Š 밁 Ş 밁

용 Ş 밁 Š 밁 Ş 밁 Ş 밁 õ

RESULT

New nystatin polyketide synthase polynucleotides and polypeptides, useful as antibiotics and antifungals -

```
AAD17186
ID AAD17186 standard; DNA; 12
XX
AC AAD17186;
XX
C AAD17186;
XX
C AAD17186;
XX
C AAD17186;
XX
C AAD17186;
XX
C Streptomyces noursel nyst;
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
XX
C Streptomyces noursel.
걸걸
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  꿜뙹
                                                               WPI; 2001-557614/62.
P-PSDB; AAE10143, AAE10144,
AAE10149, AAE10150.
                                                                                                                                                                                                                                                                                                                                                                                           08-FEB-2000; 2000GB-0002840.
10-APR-2000; 2000GB-0008786.
14-APR-2000; 2000GB-0009387.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-FEB-2001; 2001WO-GB00509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200159126-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SgS
                                                                                                                                                                                                                                                                                                           SINV-
                                                                                                                                                                                                                                                                                                                                             SNTF
                                                                                                                                                                                                                                                                                                                                                               UYNO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Polyketide synthase; PKS; macrolide; nystatin; PKS gene cluster; antifungal; antibiotic; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptomyces noursel nystatin PKS gene cluster
                                                                                                                                                                                          DZIEGLEWSKA H.

ZOTCHEV S B.

SEKUROVA O N.

PJAERVIK E.

BRAUTASET T.

STROM A R.
                                                                                                                                      SB, Sekurova O
, Ellingsen TE,
                                                                                                                                                                                                                                                                                                                                      UNIV NORGES TEKNISK NATURVITENSKAPELIGE SINTEF STIFTELSEN IND TEK FORSK.
                                                                                                                                                                                                                                                                                                         SINVENT AS
                                                                                                                                                                                                                                                                                                                      ALPHARMA AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product NysD2
20628..121308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
5337..34771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product- "NysI complete protein"
1792.51099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    roduct= "Nysn protein"
lote= "CDS does not include
unplement (60238..61296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ote- "CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mplement (58786..58980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      roduct- "NysJ protein"
155..57355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 plemen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oduct- "Nysm protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        duct- "NysK protein"
3..58687
                                                                                                                                                       NO.
                                                                                                                                      Sletta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             t (59045..60241)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "NysR4 (long) protein
                                                                                                                                Fjaervik E, Brautaset T,
letta H, Gulliksen O;
                                                                                AAE10145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complete protein*
                                                                            AAE10146, AAE10147, AAE10148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         start codon'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                start codon*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                     Strom
```

Claim 1;

```
문
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             명
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   & X S S S S S S X &
                   80799
                                                                           80739
                                                                                                                                 80679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                       80499 CCGCCCCCCGCGACCTGGCCGCCCTCGCCGACGCCGAAGGGCCCGTCCCCGACCTGGTCG
                                                                                                                                                                                                                                                                                                                                                                 80439
                                                                                                                                                                                                                                                                                                                                                                                                                          80379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80259
                                              902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80199
                                                                                                      842
                                                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80019
                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to the cloning and sequencing of the cluster encoding a modular type I polyketide synthase (PKS) enzyme involved in the biosynthesis of the macrolide antibiotic nystatin. The nystatin PKS is useful as antifungal antibiotics. The present sequence is a Streptomyces noursel nystatin PKS gene cluster DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 125401 BP; 15664 A; 49692 C; 42871 G; 17174 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
         CCGACACCGGCCGGGCCCGACCCCGAGACCCTGGC---
                            CCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCA
                                                         GCCTGATCCGCACCGCCACCGAGAACCCCGGCCGTTTCGCCCTCCTCGACCTCGCCC
                                                                                    TCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCT
                                                                                                                CGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGA
                                                                                                                                                                                                     TGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCT
                                                                                                                                                                        CGCTGAGCGCGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCG
                                                                                                                                                                                                                                TCACCACCTCACCACCACCCGGGGGGGCGCCCGTCCCCGACGCGGGGACGCCACCACCA
                                                                                                                                                                                                                                                                                                                  GCGCCTTCTACCCGCCCGCCGCCGCGCCACCACCGAAGAGATCATCGAGGTGTGCCGGC
                                                                                                                                                                                                                                                                                                                                                TCCTCGGCCCGACCGGACGCCTCGGCGACACCCTCCGGCCACCGGCATCCGGACCA
                                                                                                                                                                                                                                                                                                                                                                             CGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                          TCCACGTCGAGTGGACCCCGCTCCAGGGCCGCCCGGGCCACCGGCCACCGTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                  CAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAAAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCACCATCGCCGTCTACGACGCCGCCGGCGCACCGTGCTGCTCCGTCGACTCCCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCCCTGGACCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOGCCGCCGCCGCCACCACCACCGTCCGCGCCGGATCGCCCCGGCCGAGGACACACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCCAACCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGCCGACCTCGGCGCCATCAGCCGCGGCGGCCTGCCGTTCGCCTGGGAAGGCGTCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCCCGCCGCCTTCGGACTGCACCCGGCCCTGCTGGACGCCGCACAACACGCCGCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGGCGCCGACACCGAGGTCTACGCCGAAGTGGCCCTGCCCGACGGCGCGGACACACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCTGGGCGTGCGGCGACCCGCATCGCCGATCGGCGATCTGTCGGACGCCGCCGCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Page 188-254; 266pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 99.2; DB 22;
Pred. No. 1.7e-07;
0; Mismatches 913;
--CACCGCCCTGGCCGCCAGCC 80852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 125401;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27;
                               1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                         80798
                                                                                                                  80738
                                                                                                                                                                                                     781
                                                                                                                                              841
                                                                                                                                                                                                                                 80618
                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                         80558
                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                  80498
                                                                                                                                                                                                                                                                                                                                                                                                           80438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
```

```
AAQ73500/c
ID AAQ73500 standard;
                                                                                                                                                                                       RESULT 7
                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                 81561 TGACCCTGGAACAGGGCACCGCCCTCTTCGACGCGGCCCTGGCC
                                      attenuated virus; vaccine;
                                                                                                                                                                                                                                                                               81501
                                                                                                                                                                                                                                                                                                                                                                                                                                      81321
                                 Pseudorables virus; PRV; LLV; large latency attenuated virus; vaccine; early protein 0;
                                                                                                                                                                                                                                                                                                                                   81441
                                                                                                                                                                                                                                                                                                                                                                                     81381
    Pseudorabies
                            protecting
                                                                   DNA encoding Pseudorabies virus large latency transcript.
                                                                                                         15-MAY-1995
                                                                                                                                   AAQ73500;
                                                                                                                                                                                                                                                     1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80973
                                                                                                                                                                                                                                                                                                                                                                                                             1502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1322 TGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1022 CCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCGGCGCCATCTACTTCATGATGGACG
                                                                                                                                                                                                                                         AAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCCTGTCC
                                                                                                                                                                                                                                                                  TGACAAGCAGCCTGTCCGACCTCGACGTCGAGCGCATCGCCCGGCTCCGGCATGCCCCCGC
                                                                                                                                                                                                                                                                                                                    CCGCCACCGGCCTGCCCACCTCCCTCGCCTGGGGCCCGTGGACCCAGAGCGTCGGCA
                                                                                                                                                                                                                                                                                                                                                                      CCGGACAGGCCAACTACGCCGCCGGCAACGCCTTCCTGGACGCCCTCGCCGCCGGCGCGC
                                                                                                                                                                                                                                                                                         AGGAAGTGATGGGGGGGGGGGGGGGGGGGGGAGGGCCG---GAAAATGACCCTGC
                                                                                                                                                                                                                                                                                                                                           CAAACCGCTACATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCA 1615
                                                                                                                                                                                                                                                                                                                                                                                                CCTTAC -----AATCCGGCGTGAACGGGGGGGGGGGGCGCCCCCCCCAACCCTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCTGGACACCGTCCTGCGGCCCAAGGCCGACGCCGCCTGGCACCTGCACGAGGCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGC------CCTCGCCGACCTGCTCGGCACCGTCCCGGGCCACCGGCTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOSTOSTOCACACOGCOGCOGTCGTCGACGACGGCGTCCTCGGCTCCCTCACCCCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGAACTCACCGGGCTCGGCGACCGTCCACATCGCCGCCTGCGACGTCGCCGACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCACGACGAGCGCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACT 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCACCGGCGGCCTGGG----CGCGGTCCTCGCCGCCACCTGGTCGCCACCCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCCGCTCGCCACCGAACCCACCACCTGGAACCCGGACGGCACCGTCCTGATCACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               animals; deletion
virus.
                                                                                                    (first entry)
                                                                                                                                                         DNA;
                                                                                                                                                         8438
                        mutants;
                                                                                                                                                        ВP
                                   transcript;
EPO; HSV-1
                                                                                                                                                                                                                  81604
                                                                                                                                                                                                                                                                                           1672
                                                                                                                                                                                                                                                                                                                                                                       8144C
                                                                                                                                                                                                                                                                                                                                                                                                                          81380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1021
```

misc\_feature Location/Qualifiers
1..7013

Š 8 뭐 Ş 밁 Ş 밁 Ş 8 S

₽

```
Ş
                                                   밁
                                                                             Š
                                                                                                             맑
                                                                                                                                       S
                                                                                                                                                                    B
                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                        Query Match
                                                     5484
                                                                                                                                                                                                                                                                                                                                                                             AAQ73500 shows the Pseudorables virus (PRV) large latency transcript (LLT). The basic sequence is derived from PRV strain InFh and PRV strain Ka. The LLT overlaps and is transcribed in the opposite orientation with respect to the EPO (early polypeptide 0) and the immediately early gene (IE180). EPO is nonessential for replicatio, LTT is the only gene expressed during PRV latency, and the IE180 gene is absolutely necessary for PRV replication. However there are copies of IE180 in the genome. It is expected that PRV lacking one regions of these 3 genes will generate single deletion routants, while deletions in overlapping regions will generate double deletion mittants who invention is concerned with the concerned to the settlement.
                                                                                                                                                                     5604
                                                                                                                                                                                                                                                                                                              mutants. The invention is concerned with the construction of attenuated viruses which have a reduced ability to reactivate from latency. This can be achieved by functionally disabling the expression of the EPO gene, or by disrupting the synthesis of the LLT, or both (See also AAQ73501 and AAR60620-24)
                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Column 15-30; 43pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New pseudorables virus mutants for use in vaccine -deletion and/or insertion in the early protein O ger latency transcript gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1994-316187/39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cheung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P-PSDB; AAR60620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-SEP-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-OCT-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (USDA ) US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US5352596-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                          91
                                                                                                                                                                                                  μ
                                                                                                                                                                                                                           Local Similarity 44.9
GTCGCGCCCGGCTTCATCGACTCGCACACCACGACGACGACAACTACCTGCTCAGGCGTCGC
                                            GCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTG
                                                                                                    CGCGCCGGCCCACCGTCTCCGCCGCGCGCCCGCGGCCCCGCGGCCCTCGGCCTCC
                                                                                                                                                            TCCTCGTCCTCCGAGGGAGAAGAAGAAGAAGGAGTCCGGCCCGGCGCCCCACTCGCC 5545
                                                                                                                               TCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATC 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AK,
                                                                                                                                                                                                                                                                                   8438 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wesley RD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF AGRIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92US-0945283.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9205-0945283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8382..8387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "derived from PRV strain 7014:.8425
                                                                                                                                                                                                                                                                              1141 A; 2916 C; 3327 G; 1054 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   '*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note- "encodes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note- "RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note- "derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        '*tag≖
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *tag=
                                                                                                                                                                                                                                       5.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22..6498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       æ
                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                        Score 94.2;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cap
                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRV
                                                                                                                                                                                                                                       1.4e-06;
                                                                                                                                                                                                                                                     DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid sequence of ORF2"
                                                                                                                                                                                                                        738;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InFh"
                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                   Length 8438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     having a
ene or large
                                                                                                                                                                                                                        21;
                                                                                                                                                                                                                     Gaps
                                            5428
               270
                                                                         210
                                                                                                      5485
                                                                                                                                                                                                                      5
```

```
밁
                           ρ
                                                            밁
                                                                                   Š
                                                                                                                    밁
                                                                                                                                           Š
                                                                                                                                                                                                 Ş
                                                                                                                                                                          밁
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
     4359
                                 1285
                                                            4419
                                                                                        1225
                                                                                                                    4474
                                                                                                                                              1165
                                                                                                                                                                          4527
                                                                                                                                                                                                    1105
                                                                                                                                                                                                                                4587
                                                                                                                                                                                                                                                           1045
                                                                                                                                                                                                                                                                                        4647
                                                                                                                                                                                                                                                                                                                                             4707
                                                                                                                                                                                                                                                                                                                                                                                                     4767
                                                                                                                                                                                                                                                                                                                                                                                                                                                             4827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5427
                                                                                                                                                                                                                                                                                                                 985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5367
                                                                                                                                                                                                                                                                                                                                                                         925
                                                                                                                                                                                                                                                                                                                                                                                                                                 868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331 AGCCTGGCGCCGCTGGCGCACGCCAACCCGCCCCCCCTGGACCTGCTGGACGAAGGC
                          GGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACG
                                                                               CGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTC
                                                                                                                                                                                             GCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCCGCATCCG
                                                                                                                                                                                                                         CTGCAGCCGGCCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTG
                                                                                                                                                                                                                                                                                 CCCGCGCCCGCCCGCCCGGCCGCCCTCGGGCCCGCCTGCCTCGAGGAGGTGACCGCC
GAGCCCGCGCCCGGCTGCCCCCGCTCTGGCCCGAGCAGCCCGGCCTCGTCGTCCCAGCG
                                                    CGTGGACGGGGCCCGCGCG-----AGGCCGCCTGGACCTACGCCGCGGCCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                             CGCGTCCGCGCCTTCGCCGCCGCGCAGCCGGGCGGGGGGGCCGCGAGCTGGCGGAC
                                                                                                                                                                                                                                                                                                 CGCGACCTGGATGAAGTCCGGCCGACGCGCGCAAATCCAAGTACGACGTGGTGCCCGAG
                                                                                                                                                                                                                                                                                                                                      GCCTGCGTCCTGGCCGCGGCGTCCTCGAGCGCCTGCTGCCCGCTGCCCGCTCCGGCTG
                                                                                                                                                                                                                                                                                                                                                                 GTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                         GTCTCGCTGGACGCGTATCCCTACG---TGGCCGGCTCCACCATGCTCAAGCAGGACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACCCGGGCGCGCGGACCCCCGCGCGGGAGGCGACCGTCGAGGCCCTCTGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATTTCGGCCGCCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G---GCCGCGAGCTGGCGGCGCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGACCCGCTCTGGGCCCTGCCGCACGCGGTGAGCGCCGTGGCCATGAGCCGCCGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGACCAGCGCTTCAACCAGTTCTGCCAGCGCCGGGTCCACGCGCCCCACGGCCACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTGCAGCGCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTCAACGCCGCCTGTATGGTGGGCCCATTCAACGCTGCGGGCCGCGGGTCATGCCGGAC
                                                                                                                                                                     GCGGACTCTGTCGCCCTCGTCGCCCCACCGTGGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCTTCATCACCGGCAGCGTGACCCCGCCGCCGCACATCGGGGACGCCATGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCTACAGCGGGGCGGCGAGGCCATGTCCTGGCTGCAGAACCCGCGGATGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGTCTTCATCCCGGAGATGGGGGACTCGAGGAAGCAGCACGAGGCCCTCGTGCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGACGACGACGTCCGCCAGGCCGCGCGCCGCTACCGCGCCGGGCCGGGCCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTCTTACCGTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCCTCCGGCCGACGGCCGCCGTCCGCTACGGCGCGCCGGGGGACTCCCGCGAGGGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCGGCCCCCGCGCAGGAAGCGCCGCTCCACCAACAACCACCTCTCGCTCATGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGCCCCCCCCACCGACCGCCCCCCCCCCCCCCCCCCGGGAGCCCTGGCCCCCGCCTCC
                                                                                                                                                                    ---TGGTGCGCTACAG
                                                                                                                                                                                             1164
                        1344
                                                    4360
                                                                                1284
                                                                                                            4420
                                                                                                                                        1224
                                                                                                                                                                    4475
                                                                                                                                                                                                                                                     1104
                                                                                                                                                                                                                                                                                 4588
                                                                                                                                                                                                                                                                                                             1044
                                                                                                                                                                                                                                                                                                                                       4648
4300
                                                                                                                                                                                                                          4528
                                                                                                                                                                                                                                                                                                                                                                                               4708
                                                                                                                                                                                                                                                                                                                                                                   984
                                                                                                                                                                                                                                                                                                                                                                                                                           924
                                                                                                                                                                                                                                                                                                                                                                                                                                                     4768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5308
```

```
x \not\in SSSSSSSSSSSSSSSSSSSSSSSS
                                                                                        The specification describes antisense oligonucleotides (AAX52869-X55271) CC directed against at least 2 mRNAs selected from target genes, coding and CC initiation codons, genomic flanking regions, intron-exon borders, the CC s'-end, the 3-end and the juxta-section between coding and non-coding CC or more diseases, conditions or mixtures. The antisense oligonucleotides (specifically AAX55272-74. These multiple target CC antisense treatment of diseases and conditions. Typical diseases and CC difformation, including lung diseases, pulmonary vasoconstriction, cC respiration, nallergic rhinitis, acute asthma, allergies, asthma, impeded pulmonary hypertension, pulmonary vasoconstriction, emphysema, carcinomas e.g. colon cancer, breast cancer, lung cancer, cC departic metastases, as well as all types of cancers such as leukemias, carcinoma, as well as all types of cancers, metastasize or have metastasized to the luncs. Including huncas, including cancer, metastasize
                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAX53491
                                                    Sequence 114955 BP; 6071 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 37; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New antisense oligonucleotides used in treatment of, e.g. pulmonary vasoconstriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1999-229400/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Мусе ЈЖ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-JUN-1998;
17-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (UYEC-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W09913886-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pulmonary hypertension; pulmonary vasoconstriction; emphysema; chronic obstructive pulmonary disease; leukemia; lymphoma; carcinoma; colon cancer; breast cancer; lung cancer; pancreatic cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Antisense oligonucleotide; multiple target; antisense treatment; impaired respiration; inflammation; lung disease; pulmonary vasoconstriction; inflammation; allergic rhinitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 prostate cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human adenosine Al receptor antisense oligonucleotide fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hepatocellular carcinoma; kidney cancer; melanoma; hepatic metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAX53491 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cute asthma; allergy; asthma; impeded respiration; respiratory distress syndrome; pain; cystic fibrosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1345 GTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGG 1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EAST CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  980S-0093972.
970S-0059160.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US19419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA; 114955 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                            29417 C; 36712 G; 21328 T;
           Score 93.8;
                                                                                 including breast and prostate
        DВ
20; Length 114955;
                                         21427 other;
```

```
Db 105314 CGCCGGCCGGGCCGSNNNDNNCGCCGCCGGCCGGGCCGSNNNDNNGCCGCCGGCCGGCCC 105373
                                                                                                             ş
                                                                                                 Ş
                                                                                                                                                              ğ
                                                                                                                                                                                               용
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db 104844 CGCBGGCCBGSNNNDNNCCGCBGGCCBSNNNDNNCCGCBGGCCSNNNDNNCGCBGGCCBG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db 104904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db 104365
                                                                                                                                                                                             105194
                                                                                                                                                                                                                                                             105134
                                                                                                                                                                                                                                                                                                                                                                                105024 GCCGGGCCGSNNNDNNGGCCBGGGCGCGCCGCCG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                          104964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104784
1062 CATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCAT 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104724 GGGCGCSNNNDNNCCGCBGGCCBGGCGCSNNNDNNCCGCBGGCCBGGCCSNNNDNNC 104783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 32.6%; Matches 500; Conservative 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104605 DNNCCGCBGGCCBGGCCGCCGCSNNNDNNCCGCBGGCCBGGGCGCGCCGSNNNDNNCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104545
                                                                                                                                           942 CACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGCGCGACCTGGATGAAGT 1001
                                                                                                                                                                                                                                                                                            822
                                                                                                                                                                                                                                                                                                                                         762 GGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                          702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    522 CGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGG 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104 CCCCGGGGCGCGCGCCGACCTGGGCGTGCGCGGCGACCGCCATCGGCCGATCGGCGATC 163.
                                                                             44 CCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCAGCAACA
                                                                                                                                                                           NNDNNCBGGGCGCGCCGCCGGCCGGGCCGSNNNDNNBGGGCGCGCCGCCGGCCGGGCCGS
                                                                                                                                                                                                                                                                           GCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGC
                                                                                                                                                                                                           GTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACG
                                                                                                                                                                                                                                                                                                         GCCBGGGCGCGCCGGCCGGGCCGSNNNDNNCCBGGGCGCGCCGCCGGCCGGGCCGSN 105133
                                                                                                                                                                                                                                                                                                                                                                                                         CGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                         NNDNNCBGGCCBGGGCGCGCCGGCCGGCCGGSNNNDNNBGGCCBGGGCGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGCGCCGGCCGGGCCGSNNNDNNGCBGGCCBGGCGCGCCGGCCGGGCCGGCCGSN 104963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCBGGCCBGGGCSNNNDNNCCGCBGGCCBGGCCBGGSNNNDNNCCGCBGGCCBGGSNNNDNNC 104843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCTGTATGGTGGGCCATTCAACGCTGCGCGCGGCGGTCATGCCGGACTTGCAGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCBGGC-CBGGGCGCGCCSNNNDNNCCGCBGGCCBGGCGCGCGSNNNDNNCCGCBGGCCB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OCTGGCGCAACGCCAACCCGCCCGCCCTGGACCTGGACGAAGGCGAAGGCGGCTCTTACCG 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NDNNCCGCBGGCCBGGCGCGCCGCCGSNNNDNNCCGCBGGCCBGGGCGCGCCGCCSNNN 104604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCCGCBGGCCBGGCGCGCCGGCSNNNDNNCCGCBGGCCBGGCGCGCCGCCGGSNN 104544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCCGGCCGGGSNNNDNNCCGCBGGCCBGGCCGGCCGGCCGGSNNNDNNCCGCBG 104424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGATETE - - GEAGGGEGTEACEACGGTGGTCAEGGGEAATTGEGGGEATCAGECTGGCGCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCA 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTCGGACGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCBGGGCGCGCCGGCCGSNNNDNNCCGCBGGCCBGGCGCGCCGCCGGCCSNNNDN 104484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.2e-06;
1; Mismatches 880;
                                                                                                                                                                                                                                                                                                                                                                         -GCCGGGCCGSNNNDNN 105073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25;
                                                                                                                                                                                                                                             105193
                                                                                                                                                                                                                                                                             881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                            821
                                                                                                                                                                                                                                                                                                                                                                                                         761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       701
                                                                                                                                                                                                                                                                                                                                                                                                                                         105023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
```

```
PXXXTTTTT
                                                                                           RESULT 9
AAD17185
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                          105843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           105723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     105663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      105543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1481
                                                                       SGS
                                                                                                      CDS
                                                                                                                                                CDS
                                                                                                                                                                               CDS
                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1361
                   WO200159126-A2
                                                                                                                                                                                                                                                   Streptomyces noursel
                                                                                                                                                                                                                                                                        Polyketide synthase; antifungal; antibioti
                                                                                                                                                                                                                                                                                                       Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1182
                                                                                                                                                                                                                                                                                                                            29-NOV-2001
                                                                                                                                                                                                                                                                                                                                                  AAD17185;
                                                                                                                                                                                                                                                                                                                                                                     AAD17185 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1122
                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGGCCCGGCTTGCCCGCCCGSNNNDNNGGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGCTCGGCCCGGGCTTGCCCGGCSNNNDNNGGGCCCCTGGCTCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGGCGGCGTGCCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NNDNNGGGCCCTGGCTCGGCCCGGCGCGGCTTGCCCGGCCSNNNDNNGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCAACCCTGGACGCAAACCGCTACATGGCCCCTC 1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGGCCCSNNNDNNGGGCCCCTGGCTCGGCCCCGCGGCCTTGCCCGGCCSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTCGAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGC 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGCCCGCCCGGCCCGSNNNDNNGGGCCCCTGGCTCGGCCCCGCGCGCTTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATCCGCGCGCCTGTGGGGGCACCTT 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCCGGCTTGCCCCGGCCCGGGSNNNDNNGGGCCCCTGGCTCGGCCCCGCGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCCGSNNNDNNGGGCGCBGGCTCCGCBSNNNDNNGGGCCCCTGGCTCGGCCCCGC 105542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCG-GGTGCTGGGGCACTATGCGCGCGACCTGGGGCCTGTTCCCGCTGGAGACGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSNNNDNNCC-----GCCGGCCGGGCCGSNNNDNNCGCCGGCCGGGCCGSNNND.105422
                                                                                                                                                                                                                                                                        antibiotic;
                                                                                                                                                                                                                                                                                                 noursel nys2 DNA of nystatin PKS gene cluster.
                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                   /product = "N
                                                                                                                                                                                                                  Location/Qualifiers complement (454..1191)
                                             'product= "NysI partial protein"
                                                                     product= "NysD3 protein" 338..27541
                                                                                                         noté- "CDS does not include
product- "NysH protein"
                                                                                                                                           roduct= "NysG protein" mplement (3070..4824)
                                                                                                                                                                          ote= "CDS does not in mplement (1275..3092)
                                                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                    2..6156
                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                              PKS; macrolide; nystatin;
                                     "CDS
                                                                                                                                                                                             "NysF protein"
                                                                                                                                                                                                                                                                       nys2;
                                                                                                                                                                                                                                                                                                                                                                     27541
                                      does
                                                                                                                                                                                                                                                                        ds
                                                                                                                                                                                                                                                                                                                                                                     ВÞ
                                    not include
                                                                                                                                                                                   include start
                                                                                                                                                                                                                                                                                                                                                                                                                       105878
                                  stop codon'
                                                                                                                       start
                                                                                                                                                                                                                                                                                PKS
                                                                                                                                                                                   codon"
                                                                                                                                                                                                                                                                               gene cluster;
                                                                                                                       codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                            105842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    105782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             105722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      105662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105602
```

```
밁
                             . Q
                                                                g.
                                                                                             Š
                                                                                                                          밁
                                                                                                                                                     ş
                                                                                                                                                                                    밁
                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                            멹
                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                 23909
         23969
                                                                                                                           23852
                                                                                                                                                                                  23792
                                                                                                                                                                                                                                                                                                                                                                                                             23552 GTCACCGCGGTCGCCGCGCCACGCGCACGGCGCCCCGCGTCGACTGGAGCGGGTACTTC 23611
                                                                                                                                                                                                                                                                                                     23672
                                                                                                                                                                                                                                                                                                                                                             23612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to the cloning and sequencing of the gene cluster encoding a modular type I polyketide synthase (PRS) enzyme involved in the biosynthesis of the macrolide antibiotic nystatin. The nystatin PRS is useful as antifungal antibiotics. The present sequence is a Streptomyces noursel nys2 DNA of nystatin PRS gene cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 27541 BP; 3517 A; 10766 C; 9529 G; 3729 T; 0 other;
                                                                                              439
                                                                                                                                                       379
                                                                                                                                                                                                               319
                                                                                                                                                                                                                                                                                                                                  199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 2; Page 151-166; 266pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nystatin polyketide synthase polynucleotides useful as antibiotics and antifungals --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zotchev
Valla S
                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P-PSDB; AAE10138, AAE10139, AAE10140, AAE10141,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (SNTF )
                                                                                                                                                                                                                                                                        259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-557614/62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-FEB-2000;
10-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-FEB-2001; 2001WO-GB00509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SINV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 44.38; es 661; Conservative
CGTCAGGACGACGCGACCGCGGCCTGGGCAGCCGACGTCGAGACCGCCCTGGGCACCACC 24028
                                                                                                                                                                           GACGCCACCGTCACCGCGATGGTCCCCCGCGCTCACCGCCTGGCGCGCGGCGCGCGGCGAG
                                                                                                                  CAGACCGAACTGGACTCCTGGCGCTAC---CGCGTCACCTGGAAGCCGCGGGGGGGGGCGCC
                                                                                                                                      CTGGACGÀAGGCGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGG
                             GTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAGGAAATCGCGGCCATGCGGGACCTG
                                                          ACCGCACCCGCCCCTCACCGGCCGCTGGCTCGTGCTCGCGCACGACCACCAGGAC
                                                                                    GCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCG
                                                                                                                                                                                                      CTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTCGCTCACGGGC
                                                                                                                                                                                                                                                                                            TEGCCCGACACCACCGCCCACGAGCGCCCACACGCCCGGATCCGCCCTCGACGCCGAG
                                                                                                                                                                                                                                                                                                                       TCGGGCCTGGTGGTCGCGCCCCGGCTTCATCGACTCGCACACCCACGACGACGACAACTACCTG 258
                                                                                                                                                                                                                                                                                                                                                    GCCGACCACGGCGCGCGGCCGGACCACGCTGCCGACCCTACGCGTTCCAACGCGAGCGGTAC 23671
                                                                                                                                                                                                                                                                                                                                                                                 GACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCCGCGCACACCCGGGTCGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                     DZIEGLEWSKA H.

ZOTCHEV S B.

SEKUROVA O N.

FJAERVIK E.

BRAUTASET T.

STROM A R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SB, Sekurova ON,
Ellingsen TE, (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UNIV NORGES TEKNISK NATURVITENSKAPELIGE.
SINTEF STIFTELSEN IND TEK FORSK.
ALPHARMA AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SINVENT AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000GB-0002840.
2000GB-0008786.
2000GB-0009387.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sletta H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 93.4;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 806;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E, Brautaset
Gulliksen O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.6e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAE10142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 27541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Strom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 몷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                          23968
                                                                                     498
                                                                                                                                                                            23851
                                                                                                                                                                                                                                                                318
                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                               438
                                                                                                                                                                                                         378
                                                                                                                                                                                                                                     23791
                                                                                                                                                                                                                                                                                             23731
                                                                                                                    23908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
```

```
GGCGTGAACGGGGGGGGGTGCCGCCCCCCCCCAACCCCTGGACGCAAACCGC
                                                                                        GGCAACTACGCCGCGGCCAACGCCTGGACGCCTCGCCGAACACCGC
                                                                                                                                          CTCGCCGCTTTCGTGCTGTTCTCCTCCACGGCGGCGTCCTCGGCGCGCCGGACAG---
                                                                                                                                                                    CATGCCGGCCGCGTGCTCGCACGCACGCCACGCCTGAGCCCGGCGCCAGCCCTTACAATCC
                                                                                                                                                                                             GTGCTGCGCCCAAGACCGTCGCCGCCCACCACCTGCACGAGCTGACCGCCGACCTGGAC
                                                                                                                                                                                                                   ATCCATTCCGTGTAACGGCGCGCCGCCGCTCTGGCAAGAGCAGGCGTTCACCGGCCAG
                                                                                                                                                                                                                                                    ACCGCCGGCGTCGTCGAGGACCACGTCGTGGACGCGCTCACACCGGGAGAACTTCGCCGCG
                                                                                                                                                                                                                                                                             CCGCCACGGTGGCCGATACCGCCACCTT---CGAACACCCTACCGAGCGCGCCGGCCGGC
                                                                                                                                                                                                                                                                                                       GCGCTGGCCGCGCTCCTCGCCGAACTGCCCGACGACGCCCCGCTGTGCGCGGTGTTCCAC
                                                                                                                                                                                                                                                                                                                        GGCCTGGCCGGGCGGGCAGCTGCAGCCGGGTACTTCGCCGACCTGGTGGTGGTTCGAC
                                                                                                                                                                                                                                                                                                                                                               GAACTGGAGGAACTGGGCGCCCGGGTCACCCTCGCCGCCTGCGACGCCGACCGCGAC
                                                                                                                                                                                                                                                                                                                                                                                        GGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                   CATCCGCGCCTGT---GGGGCACCTTCCCCGGGGTGCTGGGGCACTATGCGCGCGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGGCACCGGCGTATCGGCGGCCACGTCGCCGCCGGCCTGGCCCGCGACGGCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGCCCGACACCGCCCGCACCGCCTTCGACCCGGCGGCGGCCACCGTCCTGATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACGCGTGGCCCTGCGGCCTCTCCGGCC----GCCTGGCCCACGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCGGGCGCGACCTGGATGAAGTCGCGGGCGAGGGGGGAAATCCAAGTACGACGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCCTGGACGGCCAGGCCGCCGGCTGCGGGGGGCTGCCTCGGGCTACCGACGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCCCCGAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCGCCGTCGCCTGGAACTGCCGGCCCGGTTCGGCGGCACCCTCGACCTGCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGGCGACGCCGTCGACGCGCCGCTGTGGAACGTCACCCGCGGGGCCGTGGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGCCGGCCACCCGGTGCGGCCGCCGCCCTCACCCACCACCACCGCCGTCCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCCGGCGACCAGGGCCCCGTTCAGCGGTGTGCTGTCCCTGCTGCCGCCTCGCCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCC
                            standard;
                            DNA;
                         88421
                         ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -CAGGCCGCCGTCTGGGGGCCTG
                                                                                                                  1563
                                                                                        25024
                                                                                                                                           24973
                                                                                                                                                                      1512
                                                                                                                                                                                                                          1452
                                                                                                                                                                                                                                                                               1392
                                                                                                                                                                                                                                                    24856
                                                                                                                                                                                                24916
                                                                                                                                                                                                                                                                                                        24796
                                                                                                                                                                                                                                                                                                                                   1335
                                                                                                                                                                                                                                                                                                                                                                                          1275
                                                                                                                                                                                                                                                                                                                                                                                                                                              1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1158
                                                                                                                                                                                                                                                                                                                                                               24736
                                                                                                                                                                                                                                                                                                                                                                                                                   24676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gg
                                                          Sg
                                                                                                                                                                               Sg
                                                                                                                                                                                                                       Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             biosynthesis adenylation d chlorinate; 1
                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88421nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Actinoplanes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ramoplanin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAL40781;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ramoplanin biosynthetic pathway polypeptide; is gene cluster; bioengineering; peptide synthe domain; hydroxyphenylglycine; HPG; antibiotic lipdepsipeptide; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
/product= "Protein of ORF complement (73439..71964) /*tag= t
                                                                                                                                                                                                                                                                                                /product- "P1
19032..39713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product=
                                         *tag=
                                                    product- "Protein 0659..71906
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product Protein complement (13617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA of
                                                                                                                                                                                                                                                                                                                                                                                                                                      /product- "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product ** Protein of ORF complement (12751..10829)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product= "Protein of ORF complement (7703..6693)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "Protein of O complement (6665..5814)
                                                                                                                                                                                                                                 product-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product-
                                                                                                                                                                                      rtag- o
product- "Protein
                                                                                                                                                                                                                                                                      rcag= m
product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                 5591..15863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ocation/Qualifiers
                                                                                                                                                                           546..67370
                                                                                                                                                                                                                 826..66530
                                                                                                         roduct
                                                                                                                                                                                                                                                                                                                                                                                                                        mplement (15203.
                                                                                                                                                                                                                                                                                                                                                   oduct-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8..4032
                                                                                                                                                                                                                                                                                                                                                                                                 duct-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ...10761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                                                                                                                                                                                                                                                                                                                         uct- "Protein
                                                                                                             ω i'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ramoplanin producing Actinoplanes
                                                                                                        "Protein
                                                                                                                                                 "Protein
                                                                                                                                                                                                                              "Protein
                                                                                                                                                                                                                                                                                                              "Protein
                                                                                                                                                                                                                                                                                                                                                                                            "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Protein of ORF t (9464..8130)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Protein
```

n of ORF ..12802)

of,

ORF

9

S

4

õ.

ORF

Ŋ

ORF

ω

0f

ORF

Ļ

antibiotic precursor; synthetase module; ďs

of ORF .13614)

φ 8

of,

ORF

10

밁 Ş

24440

979

24497

1039

24557

8 S 문 2 밁 Ş 뭐 Ş 문 Ş

24269

799

24209

739

24149

679

24089

24029

559

619

24320

859

919

RESULT 10
AAL40781
ID AAL40
XX

AAL40781

밁 Ş ₽ S 문 S 밁 S 밁

24974

of,

ORF

19

of,

ORF

17

욙

ORF

of,

ORF

15

of f

ORF

14

င္ရ

ORF

13

of.

ORF

12

œ,

ORF

۲

1513

24917

1453

24857

24797

1336

1276 24677 1216

```
P-PSDB; AA022146, AA022147, AA022148, AA022149, AA022150, AA022151, AA022152, AA022153, AA022154, AA022155, AA022155, AA022154, AA022155, AA022155, AA022161, AA022162, AA022163, AA022164, AA022163, AA022163, AA022164, AA022165, AA022165, AA022165, AA022165, AA022165, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022173, AA022174, AA022175, AA022176, AA022177, AA022178,
                                                                                                                                                                                                                                                                         13-OCT-2000;
12-APR-2001;
24-JUL-2001;
       The invention relates to an isolated ramoplanin biosynthetic pathway polypeptide selected from a polypeptide of open reading frames (ORF) 1-32. The isolated polypeptides are useful for chemically modifying a biological molecule that is a substrate for a polypeptide encoded by
                                                                                        Novel isolated ramoplanin biosynthetic pathway polypeptide useful chemically modifying biological molecule that is a substrate for a polypeptide encoded by a ramoplanin biosynthesis gene cluster -
                                                                        Disclosure;
   ramoplanin biosynthesis gene
                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sg
                                                                                                                                                                                                                                                    (ECOP-)
                                                                                                                                                                                                                                                                                                                                                                     WO200231155-A2
                                                                                                                                                                                                                                                                                                                    15-OCT-2001; 2001WO-CA01462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                       2002-435445/46
                                                                                                                                                                                                                                                  ECOPIA BIOSCIENCES
                                                                         Page
                                                                                                                                                                                                                                                                        ; 2000US-239924P.
; 2001US-283296P.
; 2001US-0910813.
                                                                                                                                                                                                                          Zazopoulos E,
                                                                                                                                                                                                                                                                                                                                                                                                               /product= "P
87494..88420
                                                                        87-135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product= "Protein of ORF complement (79864..78107)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product= "Protein of ORF complement (75424..74213)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product= "Protein of ORF complement (74216..73563)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :omplement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                product "Protein of ORF omplement (81624..79861)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product- "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                  372..86803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  product= "Protein of ORF omplement (78110..76449)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oduct-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           duct-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  duct-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ..86845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uct- "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ..85548
                                                                    212pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                           "Protein
                                                                                                                                                                                                                                                                                                                                                                                         "Protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Protein
t (81909..
                                                                                                                                                                                                                           Staffa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Protein of ORF (82346..82062)
                                                                                                                                                                                                                          Þ
                                                                                                                                                                                                                                                                                                                                                                                                                            ę,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of ORF
.81682)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  얁
 Уď
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORF
                                                                                                                                                                                                                                                                                                                                                                                                                            ORF
                                                                                                                                                                                                                                                                                                                                                                                          ORF 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORF
contacting
                                                                                                                                                                                                                                                                                                                                                                                                                                                              31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
the
biological
```

D for

ρ

```
문
                                                                                                     Š
                                                                                                                                                밁
                                                                                                                                                                                Š
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                    멓
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cc molecule with the isolated polypeptide, where the polypeptide chemically composites the biological molecule. The method comprises contacting the biological molecule with at least two different polypeptides encoded by ramoplanin organisms. The polypeptides are useful for directing the composition of the antibiotic ramoplanin in microorganisms. An isolated biosynthesis of the antibiotic ramoplanin in microorganisms. An isolated bioengineering of antibiotic structures. An isolated polypeptide or its canoplanin, for improving production or for producing variants of other cc ramoplanin, for improving production or for producing variants of other cc antibiotics of the peptide class. The isolated polypeptides are useful cc in conjunction with other peptide synthetase modules and allowing the incorporation of Tar into a peptide antibiotic precursor, for modifying the cc fatty acid structure and/or enhancing fatty acid incorporation into the peptide antibiotic structure, for production of an hydroxyphenylglycine cramoplanin or its variants and derivatives, for enhancing production of precursors for ramoplanin biosynthesis, for enhancing production of a peptide antibiotic precursor, and for designing specific nucleotide cramoplanin products or its variants or derivatives, to chlorinate HPG of a peptide antibiotic precursor, and for designing specific nucleotide probes and primers for identifying and isolating putative lipdepsipeptide endicating microorganisms. This polynucleotide sequence represents the cc microorganism of the invention.

Cc microorganism of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                46530
                                                                                                                                                                                                                                                                                                                                                                                                                                                           46470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46290
                              629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 88421 BP; 10639 A; 32391 C; 32663 G; 12728 T; 0 other;
                                                                                                                                                                                                                                                                449
                                                                                                                                                                                                                                                                                                                                                                                                                    329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ωĢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
CCACCAACGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACG
                                                        TCCCGGCCGACGTGCACCGGAGCCTGCGCCGGGTCGCCGGACCACGGCGCGACCGTCT
                                                                                           CCGCCGACCGGCCGGCCGCCGCGCGCCTCGCACCGCGGCCACCTGCACAGCGCGGAGA 46769
                                                                                                                                                                        ACTTGCAGCGCGCCGCCACCGACGAAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAG
                                                                                                                                                                                                               CCCGGCAGATCGCCCACTGGCGGGGAGCGGCTCGACGGCGTGCCGGAGGAGCTGGACCTGC
                                                                                                                                                                                                                                           ACTACGCCCTCTGGCAGCGTGACCTGCTGGGCTCCGACAGCGACCCGGGCGAGCCTGATCT
                                                                                                                                                                                                                                                                                                                                                                   ACGCCGCGCGGCGGGGGGCAGGCGCCCGAGTCGGAGACCCCTGCCCGTCCAGTACGCCG
                                                                                                                                                                                                                                                                                                                               GCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCCACGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                        TCAGCCTGGCGCTGGCGCACGCCAACCCGCCCCCCCCTGGACCTGCTGGACGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCACATCGCGGCCGACGGCTGGTCGATGCGGCCGCTGGCCGACCTGGCGACCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCA 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTCGAGGAGGCGGTCGCCGAAGCGGCCGCGTACGCCTTCGACCTGGCCCGGGAGATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTGCGTGCCGGCTGCTCGCCCCCGGCGACGGCACCCACGTGCTCGTGCTGCTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCAG-----GCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGGCGATCTGTCGGACGCCGCCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGCAACACCCCGGGGGGGGGGCGCCGACCTGGGCGTGCGCGACCGCATCGCCGCA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCCCGGCACGAGGTGCTGCGCACGGTGTTCACGGTCGCCGACGGCGAGCCGTGGCAAC 46289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGCACCCTCATCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 86;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 775;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2e-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 88421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                          895
                                                          46829
                                                                                               628
                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                          46649
                                                                                                                                                                                                                                                                                                                                 448
                                                                                                                                                                                                                                                                                                                                                                   46589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            214
                                                                                                                                                                                                                                                                                                                                                                                                          388
                                                                                                                                                                                                                                                                                                                                                                                                                                                 46529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ψ
```

	44 H	S X	¥	XES	333	<del>ا</del> مًا	X G XX	RES	닭	VQ	8 5	8 8	. 29	망	\$ B	9	문 5	S B	Q	B 5	g D	γQ	문 5	S B	VQ.	말	<b>₽</b>	, a	-
. •	FT CDS Comple FT CDS /*tag=	Micromonospora carbonacea	inomicin; ntation; d	monospora DNA	P-2001 (first	AAS08693;	693 standard;	ULT 11	47592 TCGCCCGCTGGCTGCGCCACG		02822822852 647.1 		1289 GCGGGCAGCTGCAG		47364 GCGTGCTCGCGGCC	1169 TGTGGGGCACCTTC	47304 CCGACCTCTTCGAC	47244	. 1049	989 47184	47124	929	47070	47010	. 809	46950	749	689	Db 46830 TCATGACCCTCC
	Location/Qualifiers complement (1321382) /*tag= a	nacea var. africana.	antibiotic; bottle-neck g	encoding blosynthetic	entry)	·	DNA; 109519 BP.		476	TCAACGGCGCGCCGTCTGGCAAG 1432	CURRIACUSCO ACCITTOSAACACCCTACCGAGCGCGCGCGCGGCATCCATTCCGTGTACG	CCGAGATCACCGTCGCGGCGCTCGTCGCCGAGCAGTGCGCCCGCACGCCGGGTGCGGTCG	JOHNOUS SONO SONO SERVICE SERVICE SONO SONO SERVICE SONO SONO SERVICE SONO SONO SERVICE SONO SONO SERVICE SON	TGGAGGCGGAGGAGAGCCGGTCATGCTCGCCGGCGCGCGC	GCGTGCTCGCGGCCGATCCGCGCGCCGCCTGGCCGAGGTCGA-	TGTGGGGCACCTTCCCCGCGGGTGCTGGGGCACTATGCGCCGACCTGGGCCTGTTCCCGC	COGACCTCTTCGACGCGCCGCCGACGACGACGACGACGACGACGACGACG	CCGAGACCTTCGACGCCGCGGGGGAGCCGGCCGGCCTCGACCTCATCGCGGCGG	AGCCGGCCGACCTACCTTCATGATGGACGAACCCGACGTGCACGCAC	ACCTGGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAGCTGC	TCCAGGTCATGGTCACCCTGGACGGCGGGCGGGCGGACGGGCCGGGCCTGG	TGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCTCTTCTCTTTTTTTT	AGAAGCTGGTCGAGGACCTCACCCCCCCCCATGCTCAAGCAGGACCGCTGC	TGCTCGGCCAGGTGCGCGAGCTGACCCTGCGGCGCTGGCCCACCAGGACGTCCCGTTCG	ATTTCGCCCCCTCGCGAGACCCTGCTGATCGAGGCCGCCATGGCGCGCCAGGACG	TCTTCGTCAACACGCTCGTGCTGCCGACCGACCGGCCGACCGCCGGCTGACCGACG	TCCCGATCGGCACCGTCGTCGCCGGCCGCCGACCGGGCGTTGTTTTTTTT	CACCCACATGCGGACGAAGGCGAGCACATCGTGCTGCTGCAGGAAAACCTTCCGCA	
			homic	enzymes for						CGAGCTCGACGAGCGGGCG	CGCCGCCGGCATCCATTCC	T	CGEGEGETTCGACCCGCCCC	CGCCGCGCGCTTCGGCCTC	CGAGGTCGA	TGCGCGCGACCTGGGCCT	GCACGACGAGCGCCCCA		JUAAGTTCGACCTCGACCT VACCCGACGTGCAGCGCAT	CCAAGTACGACGTGGTGCC	CGGACGGCGCGAGCTGCC	CGCTCGCCCGGCACCCCTGT	CCACCATGCTCAAGCAGG	CGCTGGCCCACCAGGACG	TCGAGGCCGCCATGGCGC	TGACCGGCGACCCGCGGC	ACCGGGCGCTGGAGAACC	Tetcecectceccec	
				Everninomycin.						GCCCGGA 47591	CGTGTACG 1408	HIII   RECEGTEG 47531		GGCCGGGC 1288		GTTCCCGC 1228		                			7666CCTGG 47183		ACCGCGTGC 928			GCCAGCCCA 808  TGACCGACG 47009	TGGTCGGCT 46949	GCACCGACG 46889	
•					<del>,</del>			-						-	<u>.</u>	<del></del> -			_:_	_	·							<del></del> :	
; 2	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•			HH	HHH	4 14 14 2 14 14		HH		A 4 4	1 1 1 1	1 H H	H H H	HH	라 된 된 된 된 된	5 H H	দা দা দ দা দা দ	1 in in i	1 1 1 1 1 1 1	កាកា កាកាក	9 H H	H H 1	4 H H	144	1 H H	F F F T	
ZG5	CDS	CDS	CDS		CDS	CDS	RBS	CDS .	RBS	CDS		CDS	C	RBS	CDS	RBS	CDS	CDS	RBS	CDS	CDS	RBS	CDS	RBS	CDS	RBS	CDS	RBS .	
210	/pr /*tu /pr	193 /*t	COM COM	7 <b>₹</b>	rg's	COI	con rd/	> co	`	) <u>+ 0</u>	हे कु दे स	127	> <b>&gt;</b> 10	<b>`</b> ≩8;	<u>}</u>	\ 8\ \ 28\	\ <u>\</u>	\$ \\ \?\ \?\ \	\ <u>@</u> \	\ o\	, <b>\</b> \ 01 \	/4/	·4 /	<b>.</b> 0 <b>.</b>		<b>.</b>			
105622542	/product= "EvrE" 2106422542 /*tag= aa /product= "EvrF"	1937420906 /*tag= z	plement ag- y oduct- '	/*tag= x /product= "EvrC"	product-	ă	ment ent-	ត	/product= . /*tag= t	complement	product= "No "	120271245	1042411176 /*tag= q /broduct= "F	omplemen		/#tag= n	7*tag= m	2728327 *tag= 1	/product= " 62266229 /*tag= 'k	/product= ' 62327275 /*tag= j	53096235 /*tag= 1	22	1435312 *tag= g	product = '	₹	/product= complement /*tag= d	complement complement	/product=	
Ň	"EVIE"	9 1	omplement (17870. *tag= y product= "Evro"	"EvrC"	"EVIB"		*EvrA* : (15369.		"EvdL": (13027.		EVOK"	555	11176 q += "Fydi"	complement (10232	t (9463.	6 EVOH"		-	"EvdF"	- "EvdE" 75	1 35	EvdD	9 12	<pre>"EvdC" nt (3867.</pre>	e (2622.	t= "EvdB" ent (2618 d	int (1490 C	product= "EvdA" omplement (1389	
			.18934)	17873		(1538016414)	.,15373)	(1441015363)	13030)	(1210813022)				210235)	10224)				٠					73870)	23860)	* 82622)	02611)	, 91394)	

		٠		•				,															
	-																. •						<u> </u>
γQ	D Qy	рb	y og		D 04	B 8	D Q	¥ 8 0	FT	F F	4 4 4 4 1 1	a a	5 5 7 7 7	1 1 1 1 1 1 1 1	13 13 13	11 H	1 H H	14.4.4	11.11.11.11.11.11.11.11.11.11.11.11.11	H H H	11.1	មាម មានក្រុ	1 E E
525 CACCGA	465 CTGTAT	405 CGAGCG 	357 CCCGCC        94738 CCTGGC			-	117 ccccc            94498 ccrcc	0.6	CDS	CDS	RBS	CDS	RBS	CDS	CDS	CDS	RBS	CDS	CDS	RBS	CDS	RBS	CDS
CACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGGGGCGC	CTGTATGGTGGGCCATTCAACGCTGCGGGCGGCGGGTCATGCCGGACCTGCAGGCGCCGCCGCCGCCGGACGACGACGACGACGACGAC	293020207637627637767777777777777777777777	CCCGCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTT	CGTCACCACGGTGGTCACGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAA	CACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGG	CGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCA 	CGCGACCTGGGCGTGCGCGCGCGCACCCGCGCGTCGGGCGACCTGGCGACGCGCGCG	y Match 4.8%; Score 84.6; DB 22; Length 109519; Local Similarity 45.1%; Pred. No. 3.2e-05; hes 542; Conservative 0; Mismatches 629; Indels 30;	:. 2	complement (5618456813) /*tag= bq	ă₫		들다	걸다	:. 2	/*tag* b) 52889.53557 /*tag* bk	in 2	/product= "EvsA" 5162752715 /*tag= b1	37 ct (4	킕요	7	/product= "EvrY" complement (4576745770) /*tag= be	complement (4501445760) /*tag= bd
	524	94857.	94797	1 356 2 94737	g 296 r 94677	A 236 C 94617	C 176 T 94557	Gaps 5;			•		•(•	•									

CDS

complement (43799..44866) '\*tag= bc 'product= "EvrX"

ag ba oduct "Evrw" plement (43807..43811) ag bb

RBS

CDS

RBS

duct="EvrV"
lement (42714..42717)
g= az
lement (42810..43799)

luct= "EvrU" Lement (41679..42707) ement (40899..40902)

"EVIT"

ement (40887..41576)

luct= "Evrs" ement (40216..40890) ement (38892..40163)

luct= "EvrQ" .ement (38072..38566) iuct= "Evro"
lement (36235..36963)

luct= "EvrN" ement (35219..35221)

(34449..35210)

(35294..36238)

uct= "Evrp" ement (36998..38026)

CDS

RBS

CDS

CDS

RBS

CDS

uct "EvrM" Lement (34414..34418 uct= "EvrL" lement (33167..34405)

t (31941..32882)

SdD

RBS

lement (30557..31876) g= aj duct= "EvrK" lement (31885..31888)

RBS CDS RBS

RBS

j- ad Lement (24177..25223)

"EvrG"

Sdo

CDS

```
밁
                                                                                                                                                                                                                                                                                         몽
                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                               95698
                                                                                                                                                                                                                                                                                         95578
                                                                                                                                                                                                                                                                                                                                     95518
                                                                                                                                                                                                                                                                                                                                                                                 95458
                                                                                                                                                                                                                                                                                                                                                                                                                           95398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94978
                  Desosamine biosynthesis; macrolide; polyketide; methymycin; pikroneomethymycin; narbomycin; polyhydroxyalkanoate monomer synthase; biopolymer; antibiotic; chemotherapeutic; immunosuppressant; asti
                                                               S. venezuelae desosamine biosynthetic gene desI,
                                                                                                                                                                                                                                                                1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95038
                                                                                                                                                                                                                     1287 G
                                                                                                                                                                                                                                                                                                                                                          1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94918
                                                                                            05-JUN-2000
                                                                                                                                      AAZ87286 standard;
                                                                                                                                                                                                                                                                                                                                                                                                      1047
nypercholesterolaemia; crop protection agent;
                chronic
                                                                                                                  AAZ87286
                                                                                                                                                                                                                                                                                                              1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   285
                                                                                                                                                                                                                                                                                                                                                                                                                                                 993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        645
                                                                                                                                                                                               a
                                                                                                                                                                                                                                     GCGCGGGTACCTGGCCCTGACGCCCCCCCCGGAGCCCCCGGGATTCCCCCGGGACGC
                                                                                                                                                                                                                                                          GCTGGAGACGCCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGG
                                                                                                                                                                                                                                                                                 CGAGTTGGTCGCGCGCGGGGTGGTACCGGGACCAGTGGCTGCTCCAGGAGGCGGCCGA
                                                                                                                                                                                                                                                                                                     CCTGTGGGGCACCTTCCCGCGGGTGCTGGGCCACTATGCGCGGCGACCTGGGCCTGTTCCC
                                                                                                                                                                                                                                                                                                                              GTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCGCCCCGCATCCGCG
                                                                                                                                                                                                                                                                                                                                                                        GGCGGCGACCCCGGCCACTCGGTGCTGCTGATCAGCCACCGGCTCAGCGGGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGAGCCGACGGGGGCTCGACCCGTCCGCCGACGCGGTGCTCGCCTCGGCGCT
                                                                                                                                                                                                                                                                                                                                                                                              GCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATGAAGTCGCGGCCGAGCGCAAATCCAAGTACGACGTGGTGC-----CCGAGCT 1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGCGGCAGCGCCTCGCGCTGGCCCCGGGCCCTGCTCGCCCCGGGGTGCTGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGACGCACCATCATCACCTGGTGCAAGCCCT--TCCCCGAACTGAGCGGGGGGGCGACCT 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCA----GGACCGCGTGCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATCGGCATTTCGACCGGCGCTTCTACCCGGCCGCCGCCGCGCGCCACCAAGAGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTTCGACGCGGTCACCGTGCGGTACCGGGCCGGCACCGGCCCCTGGACCGGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCGCGCGAGACGCTGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGGCCGACCTGTCGGCGTACCCGGGTCGAGGAACTGCCCCGGGCCGTCGGCGGCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGAAGGCGAGCACATCGTGGCCGCGCGCGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACCCTCGCCGCCGTCCTCACCGGCACGGTGCGACCCGAGCAGGGCCGGGTCACCCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGACCTGCCGGCCGGCCGGCTCGCCGTGGTCGGGCCGAGCGGCGCCGGCAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAAGCCCAATTTCGGCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1287
                                                                                                                                                                                               95698
              obstructive
                                                                                         (first entry)
                                                                                                                                      DNA;
              pulmonary disease;
                                                                                                                                      1248
             respiratory
  g
                                                                  SEQ ID
                                                                  NO:7.
                                         pikromycin;
                     asthma;
                                                                                                                                                                                                                                     95697
                                                                                                                                                                                                                                                            1286
                                                                                                                                                                                                                                                                                                         1226
                                                                                                                                                                                                                                                                                                                                                   1166
                                                                                                                                                                                                                                                                                                                                                                                               1106
                                                                                                                                                                                                                                                                                                                                                                          95517
                                                                                                                                                                                                                                                                                  95637
                                                                                                                                                                                                                                                                                                                                                                                                                     95457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94977
     Ş
                              닭
                                                Ş
                                                                         밁
                                                                                             Ş
                                                                                                                                                                                                  99999999999999999999999
```

Ş

```
CC production of biologically active macrolides. The macrolide biosynthetic cc proteins are useful for synthesis of methymycin, pikromycin, concenethymycin and narbomycin. The alternative termination of polyketide cc synthesis may be useful to prepare novel antibiotics and crecombinant host cells are useful as biopolymers, e.g., in packaging or combinant host cells are useful as biopolymers, e.g., in packaging or biomedical applications, to engineer PHA monomer synthases or to prepare. Cc biomedical paplications, to engineer phA monomer synthases or to prepare. Inmunosuppressants, agents to treat asthma, chronic obstructive pulmonary cdisease as well as other diseases involving respiratory inflammation, collisease as well as other diseases involving respiratory inflammation, collisease as well as other diseases involving respiratory pathogens, as well as other diseases involving respiratory pathogens, as well cative against a variety of organisms, e.g., bacteria, including culti-drug resistant pneumococci and other respiratory pathogens, as well as viral parasitic pathogens, or as crop protection agents (e.g., complicities or insecticides) via expression of polyketides in plants. Cc Sequences AA287286-287294 represent desosamine biosynthetic genes from control of pathogens, collised of the pathogens and collised of the pathogens as a collised of the polyketides of plants. Cc Streptomyces venezuelae ATCC 15439, which encode proteins
Streptomyces ven
AAY77181-Y77189.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pikromycin, neomethymycin, narbomycin or a combination compounds. Recombinant or augmented cells comprising the and/or macrolide biosynthetic gene clusters are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  comprising a desosamine biosynthetic gene cluster, a fragment or its biologically active variant, where the nucleic acid sequence is not derived from the eryC gene cluster of Sacchaeopolyspora crythraea or streptomyces antibioticus. The invention also relates to a macrolide biosynthetic gene cluster, or fragments thereof. The macrolide biosynthetic gene cluster, or fragments thereof. The macrolide biosynthetic gene cluster encodes proteins which synthesise methymyci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to an isolated and purified nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Désosamine and synthesis of me
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-160679/14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MINU ) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200000620-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          methymycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MINNESOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 macrolide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0105537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US14398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             438pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      biosynthetic and pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "DesI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene clusters, useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the desosamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acid segment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for, e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         methymycin,
```

ġ

Sequence 1248 BP; 177 ? 546 C; 377 G; 148. T; 0 other;

.Length

<u>ي</u>

밁 Ş Matches Query Match Best Local Similarity 335 212 152 275 215 92 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGCCGGCCTCACCGGCG TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG 439; Conservative 4.78; 0 Score 81.8; DB 21; Pred. No. 0.00015; 0; Mismatches 542; Indels 12; Gaps 271 394 334 151 274 91 211

**EFFFF** 

Streptomyces venezuelae ATCC15439

```
Š
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                              GIYCOSYlated polyketide; modified recombinant bacterial host cell; mRBHC; macrolide; anthracycline; angucycline; avermectin; milbemycin; tetracycline; polyene; polyether: ansamucin:
                                                                                                                                                                                                                                                 1172
         Streptomyces venezuelae
                                                                                                                                                                           AAD39044 standard; DNA; 1248
                                                                                                                                                        AAD39044
                                                                                                                                                                                                                                                                                                                                                    1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    692
                                                                                                                                                                                                                                                                        983
                                                                                                                                                                                                                                                                                                                                                                              863
                                                                                                                                                                                                                                                                                                                                                                                                        992
                                                                                                                                                                                                                                                                                                                                                                                                                                 812
                                                                                                                                                                                                                                                                                                                                                                                                                                                         932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 395
                                                                                                                                                                                                                                           CGCGCCACCGCGACACGCCCCCCCCCCCCCCCCCC
                                                                                                                                                                                                                                                                   GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG
                                                                                                                                                                                                                                                                                                                 GCGTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                            CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                     AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                             CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCGCTGCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                      TCGGCCGCTCGCGCAGACGCTGCCGCTGATCGAG-------GCCGCCATGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCGAGCTGGACCTGCCGGTGGTGATCTCGCACCAAAGGTCATGGGCCAAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                          ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGGCCTCACCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCCCGGCGGCAGCCCGGCGGGCGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCGACGACGCCGACCTCGCCGCCCCGGATCCGCCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGGG 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCAGCGCGCCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ide; anthracycline; angucycline; avermectin;
  polyene; polyether; ansamycin; isochromanequesi; 4-dehydrase; enzyme; gene; ds.
                                                                                                venezuelae DesI gene
                                                                                                                            (first entry)
                                                                                                                                                                           BP.
                                                                                                                                                                                                                                                                    1015
                                                                                                                                                                                                                                             1204
                                isochromanequinone;
                                                                                                                                                                                                                                                                                                                    982
                                                                                                                                                                                                                                                                                                                                                                                               1051
                                                                                                                                                                                                                                                                                                                                            1111
                                                                                                                                                                                                                                                                                                                                                                      922
                                                                                                                                                                                                                                                                                                                                                                                                                       862
                                                                                                                                                                                                                                                                                                                                                                                                                                                 991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       454
```

```
밁
                                                         δÃ
                                                                                       밁
                                                                                                                Š
                                                                                                                                             뭥
                                                                                                                                                                     Š
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                   XX 444 444 XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 439;
                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                The invention provides a method to alter the sugar structure diversity for a particular metabolite via the recruitment and collaborative action of sugar genes from a variety of sugar biosynthetic pathways to yield a polyketide. The invention also relates to a modified recombinant bacterial host cell (mRBHC) in which the expression and activity of nucleic acids encoding sugar biosynthetic enzymes has been altered. The mRBHCs may be cultured to produce the modified sugar products, e.g. a macrolide, anthracycline, ansurcycline, avermectin, milbemycin, tetracycline, polyene, polyether, ansamycin or isochromanequinone. The present sequence is Streptomyces venezuelae sugar (desosamine) biosynthetic gene cluster Desi (4-dehydrase) gene.
                                                                                                                                                                                                                                                                                                                                                                Sequence 1248 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Modified recombinant bacterial host cells in which the expression and activity of nucleic acids encoding sugar biosynthetic enzymes has been altered, useful for producing metabolites with altered sugar structure.
        332
                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Page 153-154; 174pp; English
                                                                                         395
                                                                                                                                                                                                                                                       215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2002-405171/43
                                                                                                                                                               152 CCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG
                                                                                                                                                                                                   275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Liu H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        05-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-OCT-2001; 2001WO-US31255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200229035-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ZHAO/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (SHER/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MINU)
                                                                                                                                                                                                                    32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (/HOIT
GCCTGGCGCCGCTGGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCG
                         GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                     TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                               CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                     ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA
                                                                                                AAGTGATCATGCCGTCGATGACGTTCGCCGCCACCCCCCCACGCACTGCGCTGGATCGGCC
                                                                                                                                                                                                                                                Sherman DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SHERMAN D H.
ZHAO L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UNIV MINNESOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   H OIT
                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-238185P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product= "Streptomyces venezuelae DesI protein"
/transl_except= (pos:1..3, aa:Met)
/note= "CDS does not include start codon"
/partial
                                                                                                                                                                                                                                                                                                                                                          177 A; 546 C; 377 G; 148 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                                                                     44.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                     Score 81.8; DB 24; Pred. No. 0.00015; 0; Mismatches 542;
                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                      12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         structures
                                                                                                                                                                                                                                                                                                    Gaps
 391
                           514
                                                      <u>س</u>
                                                                                454
                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                          91
                                                                                                           271
                                                                                                                                     394
                                                                                                                                                               211
                                                                                                                                                                                           334
                                                                                                                                                                                                                                                 274
```

š

```
AAZ87284/c
ID AAZ87284 standard; DNA; 12441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                    incommertymycin; narbomycin; polyhydroxyalkanoate monomer synthase
biopolymer; antibiotic; chemotherapeutic; immunosuppressant; asti
chronic obstructive pulmonary disease; respiratory inflammation;
hyporchologically pulmonary disease; respiratory inflammation;
  26-JUN-1998;
                           25-JUN-1999;
                                                                                  W0200000620-A2
                                                                                                            Streptomyces venezuelae ATCC15439,
                                                                                                                                                                                                                                                                                                                                                                                        1172
                                                                                                                                    hypercholesterolaemia; crop protection
                                                                                                                                                                                      Desosamine biosynthesis; macrolide; polyketide; methymycin;
                                                                                                                                                                                                                             S. venezuelae
                                                                                                                                                                                                                                                                                       AAZ87284;
                                                                                                                                                                                                                                                                                                                                                                                                                                             1112
                                                                                                                                                                                    neomethymycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1052
                                                                                                                                                                                                                                                                                                                                                                                                                  983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                515
                                                                                                                                                                                                                                                                                                                                                                              CGCGCCACCGCGACACGGCCCCCGCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                        GCCCCGACCTGGATGAAGTCGCGGCCGAGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                               ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGGGCGGCGGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGTGCTGCCGGGCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGAACGCCTCGCCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGGGCTGCCACGAGCTGGAGCCGTACCGGGGCAGCCGCACGCCCCCCCTGCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGGCCGCTCGCCGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCAGCGCGCCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGCCTCACCTCCCTCGACGCGTTTCCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCCCGGCGGCAGCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cceceaceccreegcrececegregacesccecceccacecacecreegcacecce
                                                                                                                                                                                                                  desosamine biosynthetic gene cluster pikB,
                                                                                                                                                                                                                                                     (first entry)
·980S-0105537
                           99WO-US14398
                                                                                                                                                                                                                                                                                                             ВÞ
                                                                                                                                                                                                                                                                                                                                                                               1204
                                                                                                                                                                                                                                                                                                                                                                                                           1015
                                                                                                                                                                                                                     SEQ
                                                                                                                                                                                      pikromycin;
                                                                                                                                                             asthma;
                                                                                                                                                                                                                   Ä
                                                                                                                                                                                                                   NO: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                             982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    574
```

닭 Ş 밁 8 밁 S 닭 Ş

392

AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCCTCG GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGG

451

11623

11683 391

GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCG CCGCGCACGCCTCGGCTGCGCGGTCGACGGCCGGCCGGCAGCCTCGGCGACGCCG

GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT TOGOGOCOGGOTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG 271 TCACCCCGGTCTTCGCCGACATCGACCCCGGACACCGGCAACCTCGACCCGGACCAGGTGG

11743

11803

11863

11802

212

272

11862

밁 Ş 밁 Ş

11922

CCATCGGCGATCTGTCGGACGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG 211

92

152

Best Loc Matches

11982

CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGCCCGGCCTCACCGGCG 11923

ACGGCAGCAACACCCCGGGGCGGCGCGCCGACCTGGGGCGTGCGGGGGGACCGCATCGCCG 151

Query Match
Best Local Similarity

Conservative

0

44.28;

Score 81.8; DB 21; Pred. No. 0.00011; 0; Mismatches 542;

Indels Length 12441;

Gaps

'n

```
comprising a desosamine biosynthetic gene cluster, a fragment or its biologically active variant, where the nucleic acid sequence is not clerived from the eryc gene cluster of Saccharopolyspora erythraea or Streptomyces untibioticus. The invention also relates to a macrolide biosynthetic gene cluster, or fragments thereof. The macrolide compounds. Recombinant or augmented cells compissing the desosamine compounds. Recombinant or augmented cells comprising the desosamine cells of biologically active macrolides. The macrolide biosynthetic gene clusters are useful for the production are useful for synthesis of methymycin, pixromycin, neomethymycin, neomethymycin, neomethymycin, neomethymycin and cells comprising the desosamine cells are useful for synthesis of methymycin, pixromycin, neomethymycin and cells useful to prepare novel antibotics and polyhydroxyalkanoate (pHA) cells useful to prepare novel antibotics and polyhydroxyalkanoate (pHA) cells are useful componers. The compounds produced by the recombinant host cells are useful cells as biopolymers, e.g., in packaging or biomedical applications, to cells as biopolymers, e.g., in packaging or biomedical applications, to cells as chemotherapeutics, immunosuppressants, agents to treat asthma, cells as chemotherapeutics, immunosuppressants, agents to treat asthma, cells as chemotherapeutics, immunosuppressants, agents to treat asthma, cells as chemotherapeutics, immunosuppressants, agents to treat asthma, cells as chemotherapeutics, immunosuppressants, agents to treat asthma, cells as chemotherapeutics, immunosuppressants, agents or macrolide-based antiblotics which are active against a variety of organisms, e.g., cells as chemotherapeutics, as well as other diseases involving antiblotics and plants. The present sequence represents the desosamine components (e.g., fungicides or insecticides) via expression of components (e.g., fungicides or insecticides) via expression of components (e.g., fungicides or insecticides) via expression of components (e.g., fungicides
Sequence 12441 BP; 1704 A; 4294 C; 4686 G; 1757 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 2; Page 281-287; 438pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desosamine and macrolide biosynthetic synthesis of methymycin and pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sherman DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MINU ) UNIV MINNESOTA.
                                                           cluster from Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                an isolated and purified nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                        venezuelae ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clusters, useful for,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Œ
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                     . 말
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                               11025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11265
                                                                                                                                                                                       weometnymycin; narbomycin; polyhydroxyalkanoate monomer synthase; blopolymer; antibiotic; chemotherapeutic; immunosuppressant; asth hypercholesterolaemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11565
   CDS
                                      CDS
                                                                        Sg
                                                                                                                                                                 Streptomyces
                                                                                                                                                                                                                                                                                                             AAZ87319
                                                                                                                                                                                                                                                                                                                                   AAZ87319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                452
                                                                                                                                                                                                                                                              venezuelae
                                                                                                                                                                                                                                                                                                                                                ે
                                                                                                                                                                                                                                                                                                                                                                                          GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGGCGGCCGGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGTGCTGCCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGAACGCCTCGCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCCGCTGCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG-----GCCGCCATGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCGAGCTGGAGCGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACCGAAGAGCATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC 11506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGCCTCACCTCCCTCGACGCGTTTCCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCCCGGCGGCAGCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCAGCGCGCCGCCACGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                               venezuelae ATCC15439.
                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                                                       desosamine biosynthetic gene cluster pikB
product= "PikB gene cluster protein 834:.7402
                                                                                                                                         Location/Qualifiers
                                              roduct- "PikB
                                                                             roduct= "PikB gene cluster protein #1 ote= "No initiation codon given in the
                                                                       6..2014
                                                                                                                                                                                                                                                                                                                                   DNA;
                                                                                                         tia.
                                                                                                                                                                                                                                                                                   entry)
                                   . 6741
                                                                                                                                                                                                                                                                                                                                   13613
                                             gene
                                             cluster
                                             protein
         #3 (AAY77205)"
                                             #2
                                                                              (AAY77204)"
e specification"
                                             "(8660BAW)
                                                                                                                                                                                                                                  pikromycin;
                                                                                                                                                                                                          asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             571
                                                                                                                                                                                                                                                                                                                                                                                                                                        11026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11446
```

```
The invention relates to an isolated and purified nucleic acid segment comprising a desosamine biosynthetic gene cluster, a fragment or its biologically active variant, where the nucleic acid sequence is not cerived from the eryC gene cluster of Saccharopolyspora erythraea or compounds and the critical control of the critical control of the critical control of the critical control of the critical control of the compounds. Recombinant or augmented cells compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine compounds. Recombinant or augmented cells comprising the desosamine cells are useful for synthesis of methymycin, pikromycin, neomethymycin and contamination. The alternative termination of polyketide synthesis may be cuseful to prepare novel antiblotics and polyhydroxyalkanoate (PHA) componers. The compounds produced by the recombinant host cells are useful confineer PHA monomer synthases or to prepare biologically active agents, such as chemotherapentics. Immunosuroresants agents to treat sathum.
such as chemotherapeutics, immunosuppressants, agents to treat asthma, chronic obstructive pulmonary disease as well as other diseases involving respiratory inflammation, cholesterol-lowering agents or macrolide-based antibiotics which are active against a variety of organisms, e.g.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Figure 32; 438pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Desosamine and macrolide biosynthetic synthesis of methymycin and pikromycir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sherman DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-JAN-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200000620-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MINU ) UNIV MINNESOTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25 - มนพ - 1999 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -PSDB; AAY77204, AAY77205, AAY77206, AAY77207, AAY77207, AAY77208, AAY77209, AAY77210, AAY77211, AAY77212, AAY80998, AAY80999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000-160679/14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       methymycin and pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99WO-US14398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "PikB gene cluster protein #7 (AAY80999)"
complement (11271...12149)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= e
/product= "PikB ge
complement (7942...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "PikB gene cluster complement (12342..13799)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_except= (pos:8270..8272, aa:Val)
/transl_except= (pos:8273..8275, aa:Thr)
/transl_except= (pos:8276..8278, aa:Gly)
omplement (10126..11139)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product- "PikB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           product= "PikB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product- "PikB gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transl_except=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'product- "PikB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        product "PikB gene cluster protein #6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product= "PikB gene cluster
omplement (13706..15043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene cluster protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene cluster protein #5 (AAY77207)*
2..8205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene cluster protein #4 (pos:6837..6841, aa:Gln)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene clusters, useful for,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein #9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in the specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *11 (AAY77212)*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #10 (AAY77211)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (AAY77210)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (AAY77209)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (AAY77208)*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (AAY77206)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ġ
```

r r x

```
밁
                                                                                       Ş
                                                                                                                            밁
                  S
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                នួននួននួន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                 11832 CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                        11892 CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCGCTGCCGCACA 11833
                                                                                                                                                                                                                                                 12012 ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                        12072 CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                            11952 ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12252 TCACCGACGACGCCGACCTCGCCGCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC 12193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      · 12669
                                                                                                                                                                                                                                                                                                                                                                                                               12132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12489
                                                                    863 AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                812 TCGGCCGCCTCGCGCGAGACGCTGCCGCCTGATCGAG-------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                       692
                                                                                                                                                                                                                                                                                                                                                                            632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12549 TOACCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG 12490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 752 GCCGGAGCTGGACGTGGTGGTGATCTCGCACCAAGGTCATGGGCCAGCCCAATT
923 GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                              572 TGGCCAGCGGCGATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCGCA 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     512 TECAGCECCECCACCEACGAGGAAATCECGGCCATGCGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 respiratory pathogens, as well as viral parasitic pathogens, or as crop protection agents (e.g., fungicides or insecticides) via expression of polyketides in plants. The present sequence represents the desosamine blogynthetic gene cluster (pik) from Streptomyces venezuelae ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 13613 BP; 1858 A; 4733 C; 5092 G; 1930 T; 0 other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212 TCGCGCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                   CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                           TEGECCTCACCTCCCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG 12073
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCCGGCGGCAGCCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCCA 12133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG 12370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCCGCGGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT 12430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCTGGCGCCTGGCGACGCCAACCCCGCCCGCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCATCGGCGATCTGTGGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGGCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            given in figure 32.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 81.8; DB 21; Length 13613;
Pred. No. 0.00011;
0; Mismatches 542; Indels 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
   982
                                     11773
                                                                                                                                                                                                                                                                                                                        12013
                                                                                                                                                                              11893
                                                                                                                                                                                                                811
                                                                                                                                                                                                                                                     11953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          į,
```

```
Db 11772 ACATCCGCCGGGTCGCCGACCTGCTGCTGCTCTGCGCGGACCCGGGCCGCGAACTGACCG 11713
```

Search completed: May 11, 2003, 01:57:18 Job time: 1433 secs

```
Result .
                                                                                                                                                                                                                                                                                                                                                                                                                                          Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OUTFMT-pto NORM-ext -HEAPSIZE-500 -MINLEN-0 -MAXLE
-USER-US10009782_@CGN_1_1_99_@runat_07052003_122517-
-WO_XLEXY -WO_MMAP -LARGEQUERY -NEG_SCORES-0 -WAIT -
-WARN_TIMEOUT-30 -THREADS-1 -XGAPOP-10 -XGAPEXT-0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O-/cgn2_1/USPTO_spool/US10009782/runat_07052003_122517_23135/app_query.fasta_1.1927

-DB-SPTREMBL_21 -QFMT-fastan -SUFFIX-rspt -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0

-UNITS-bits -START-1 -END=-1 -MATRIX-blosum62 -TRANS-human40.cd1 -LIST-45

-DOCALIGN=200 -THR_SCORE-pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE-LOCAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters: MODEL=frame+_n2p.model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM nucleic -
                                    ŏ
.
                                                                                                                                             Pred. No.
                                 Score
                                                                                                      d. No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.
      2216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -YGAPEXT-0.5 -DELOP-6 -DELEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein search, using frame_plus_n2p model
                                Query
Match Length DB ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xgapop 10.0 ,
Ygapop 10.0 ,
Fgapop 6.0 ,
Delop 6.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                       SPTREMBL_21:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           May 11, 2003, 12:09:25; Search time 85 Seconds (without alignments) 8523.078 Million cell updates/sec
      67.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-009-782-1
3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                   sp_archea:*
                                                                                                                                                                                                                                                                                                                                                                                                        sp_bacteria: *
                                                                                                                                                                      sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                           3p_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                          sp_fung1:*
                                                                                                                                                                                                   sp_unclassified:*
sp_rvirus:*
                                                                                                                                                                                                                                   sp_vertebrate: *
                                                                                                                                                                                                                                                     sp_virus:*
                                                                                                                                                                                                                                                                                                                                                          _invertebrate: *
                                                                                                                                                                                                                                                                                                              _organelle:*
                                                                                                                                                                                                                                                                                p_plant:*
    484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapext
Ygapext
Fgapext
Delext
    Q9AGH8
                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -FGAPOP-6 -FGAPEXT-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ONGLOG -DEV_TIMEOUT=120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1343160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -NCPU-6 -ICPU-3
Q9agh8 alcaligenes
                   Description
                                                         SATERRARANOCOCCEDENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              00
```

		7		TNAOV.	DEET THE DEED	1 AGHR	88. 11. 1
	ALIGNMENTS	ALIGN					
TADA		093251	μ,	1445	8 :	267.5	45
outes caeno		RAHIDO	٠ (	2296	8 .		4
75045 nomo sapie		050105		101	•		ω <u>ε</u>
013028 bore		07070	٠ t	100/	•	-	5:
q35 homo		290235	J	טכ	٠ د د د	) ) ) ) )	- 6
0 homo		090040	4	1262	•		<u>.</u>
Q9uq39 homo sapien		090039	-	v	•	271	
icro	•	Q8VPR1	N	100	8 60	271	37
9		Q9UHA8	<b>~</b>	2296	•	272	36.
09mg40 homo santen		090040	Α.	വ		272	35
Ologo at the property of the p		026634		-	ω : ω :	272.5	4
nalobacter		CANTE	- د	1453		274.5	ω i
Q8vpn0 micrococcus	•	ONANA.		400	ο α • υ	277.5	υ t
. Q65553 bovine herp		Q65553	N	3247		284	2 0
omo sapien	٠.	Q9BX49	~	1404	•	284	29
zea mays		Q9SPM0	10	1315	•		28
092954 homo sanien		Q92954	4	1404	•		27
09h1+7 nenh11a mad		O9BIT7	oi i	1953	•		26
		053913	N (	527		286.5	25
Bus			ло	1125	9 0		2 6
		626460	nσ	510	•		7 7
hom		015038	4٠	1783	9 4	295	3 6
ממ		Q90Q36 .	4	1275	٠	295	20
bomo o		Q90Q35	4	2752	9.1	296	19
		060382	4	1791	9.1	296	18
0419/3 murid herpe		041971	12	774	9:	299	17
2 murid	•	041972	3 5	727	٠ د د	299	16
sus scr		Q95JD1	50	900	ع د ما د	300	л <del>ф</del>
52747 r		Q52747	N	680	9.3	307	. ω
8uzel		QBUZE1	12	890	9.8	318	12
O9q5k9 herpesvirus		Q9Q5K9	12	808	9.9	.322.	11
OBiis11 magiidorahid		080211	12	3084	10.0	331	10
40207 III 6065		099307	5	924	10.2		φ,
Tagno		00000	١,	л ( ) О	10.0	338.5	ω.
9q5k9 herpesviru		090751	3 5	900	10.3	ա ս ս ս	<b>~</b>
9a2u6 c		Q9A2U6	; 6	0 0	11.0	370	א נ
931k8		Q93JK8	16	536	1	٠.	J de
2d3 pyrococcus		Q9V2D3	: 17	526	28.6		سا -
Q8xqn5 ralstonia s		Q8XQN5	16	494		ō	ผ
					•		

RESULT 1					•	
9AGH8		٠				
ID Q9AGH8 P	PRELIMINARY:	RY:	PRT:	484 AA	•	
Q9AGH8;					•	
01-JUN-2001	(TrEMBLrel	. 17,	Created)			
01-JUN-2001	(TrEMBLrel.	. 17,	Last sequence update)	ence u	odate)	
01-JUN-2001	(TrEMBLrel.	17,	Last annotation update)	tation	update)	
	e (EC 3.	5.1.81).				
)S Alcaligenes faecalis.	ecalis.				•	
	teobacte	ria; bet	subdiv	ision:	Bacteria; Proteobacteria; beta subdivision; Alcaligenaceae;	
						,
	•					
RP SEQUENCE FROM N.A.	N.A.			•		
	W.L., C	hang W.W	., Yang	Y.B., 1	rsai Y.C.;	
	nucleo	tide sequ	lencing (	of Alca	"Gene cloning, nucleotide sequencing of Alcaligenes faecalis DA1 D-	DA1 D-
	•-		,			
	2-2000)	to the E	ÆL/GenBı	ank/DDE	3J databases.	
	3; AAK15	530.1; -				
SEQUENCE	484 AA; 5	52000 MW;	634119	A6CB751	634119A6CB75155E CRC64;	
lignment Scores: red. No.:	<b>.</b>	96e-104	Length	ot h	484	
core:	22:	2216.00	Mate	Matches:	416	

```
Ş
                      Š
                                                 밁
                                                                                                    밁
                                                                                                                          Š
                                                                                                                                                       밁
                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           皮
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                           Ş.
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-009-782-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                       994
                                                 301
                                                                          934
                                                                                                                              874
                                                                                                                                                        261
                                                                                                                                                                                 814
                                                                                                                                                                                                           241
                                                                                                                                                                                                                                     754
                                                                                                                                                                                                                                                               221
                                                                                                                                                                                                                                                                                         694
                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                              634
                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                   514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match:
                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94 GGCAGCAACACCCCGGGGCGGCGCGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCG
                                                                                          GCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTG
                                                                                                                                                GGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCCAGGACGTCTCG
                                                                                                                                                                                                                                                       CACATGCGCGACGAAGGCAGACATCGTGGCCGCGCGCGTGGAGGAAACCTTCCGCATCGGC
                                                                                                                                                                                                                                                                                                          CAGCGCGCCGCCACCGACGAAGATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgGluAlaThrAlaAspGluIleGlnAlaMetGlnAlaLeuAlaAspAspAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCCGGCTTCATCGACTCGCACACCCACGACGACGACTACCTGCTCAGGCGTCGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGACGCCCAAGATCTCGCAGGGCGTCACCACGGGTGGTCACGGGCAATTGCGGCATCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerProGlyPheIleAspSerHisThrHisAspAspAsnTyrLeuLeuLysHisArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCGGCGATCTGTCGGACGCGCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-1758)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93.80%
85.95%
67.17%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9AGH8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-484)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative: Mismatches: Indels: Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0038
                1053
                                                                                                                       933
                                                                                             300
                                                                                                                                                 280
                                                                                                                                                                           873
                                                                                                                                                                                                      260
                                                                                                                                                                                                                              813
                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                       693
                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                   753
                                                                                                                                                                                                                                                                                                             220
                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                              573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                           Score:
US-10-009-782-1
                                                                                                                                  AID DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA DE CONTRA RESERVA 
                                                                                            Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8XQN5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1114
                                                                                            8
0
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
```

```
Percent Similarity:
Best Local Similari
Query Match:
                                                                                                                                                              Salanoubat M., Genin S., Artiguenave F., Gouzy J., Mangenot S., Arlat M., Billault A., Brottier P., Camus J.C., Cattolico L., Chandler M., Cholsne N., Claudel Renard C., Cunnac S., Demange N Gaspin C., Lavie M., Moisan A., Robert C., Saurin W., Schiex T., Siguier P., Thebault P., Whalen M., Wincker P., Levy M., Weissenbach J., Boucher C.A.;
Weissenbach J., Boucher C.A.;
"Genome sequence of the plant pathogen Ralstonia solanacearum.", Nature 415:497-502(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2002
01-MAR-2002
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-2002 (TrEMBLrel. 20, Created)
01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
Probable N-acyl-D-glutamate deacylase protein (EC 3
NDED OR RSP1187 OR RS03131.
Raistonia solanacearum (Pseudomonas solanacearum).
                                                                                                                        EMBL; AL646083; CAD18338.1; --
Hydrolase; Plasmid; Complete p
SEQUENCE 494 AA; 53186 MW:
                                                                                                                                                                                                                                                                                       MEDLINE=21681879; PubMed=11823852;
                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                     Plasmid megaplasmid.
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                           Ralstonia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCACGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGC 1113
                                 Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluGluIleAlaAlaGluArgGlyLysSerLysTyrAspValValProGluLeuGlnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
4.67e-46
1064.00
59.88%
45.26%
32.25%
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1485
                                                                                                                                                                                                                                                                                                                                                                                   beta subdivision; Ralstonia
                                                                                                                                    proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                        1C8A40B8B3EEC7C5
Mismatches:
Indels:
Gaps:
                                            Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         494
494
229
74
183
                                                                                                                                                                                                                                                                                                                                                                                                                                                 .5.1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
```

(1.-1758)

x Q8XQN5

(1-494)

δÃ

```
1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                514
   341
                                                                321
                                                                                                                            301
                                                                                                                                                                                        281
                                                                                                                                                                                                                      874
                                                                                                                                                                                                                                                     261
                                                                                                                                                                                                                                                                                  814
                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                               754
                                                                                                                                                                                                                                                                                                                                                                            221
                                                                                                                                                                                                                                                                                                                                                                                                           694
                                                                                                                                                                                                                                                                                                                                                                                                                                          201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGCGCGCCGCCACGACGAGGAATCGCGGCCATGCGGGGACCTGGCCGAGGAAGCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCCG
:::||||||
                                                                                                                                                                                                                                                                                                            SerProAlaThrLeuArgGlyGluProProAspProMetAsnLeuLeuGlyProAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGCTTCATCGACTGCACACCCACGACGACGACTACCTGCTCAGGCGTCGCGACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGGACGCCGCGCG------CACACCCGGGTCGACGTGTCGGGCCTGGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnGlnTyrAspSerVallleArgArgValArgIleValAspGlySerGlyHisGluPro
|||||||||:::|||
AlaGlyAlaValTyrHisAsnMetAlaAlaGluAspLeuAspArgIleIleAlaHisPro
                                GCCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGC
                                                           \textbf{LysAlaIleAlaAlaTrpGlyThrAspLeuLeuAspAlaAlaArgArgLeuGlnPro} \\
                                                                                                                       GluPheAspIleValIleThrTrpSerAspProHisProGluMetAlaGlyGlnThrLeu
                                                                                                                                                       GCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGCGACCTG
                                                                                                                                                                                      CysAspCysTyrProTyrThrAlaSerSerSerThrLeuAspLeuLysGlnValThrAsp
                                                                                                                                                                                                                     CTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTG
                                                                                                                                                                                                                                                GlyArgAlaGlyGluValLeuGluSerIleGluAlaAlaGlnArgTyrGlnProValGly
                                                                                                                                                                                                                                                                               GGCCGCTCGCGCGAGACGCTGCCGCCTGATCGAGGCCGCCATGGCCCAGGACGTCTCG
                                                                                                                                                                                                                                                                                                                                            CGCGAGCTGGACGTGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTC
                                                                                                                                                                                                                                                                                                                                                                         CACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCGGCATCTACGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspArgProAlaThrAlaProGluValGluAlaMetArgAlaGlnLeuArgGluAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValAsnValAlaAlaLeuValGlyHisThrAlaLeuArgAsnAsnHisLeuAspArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCCGCTGGCG----CACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProGlyPheIleAspValH1sThrHisAspAspThrAsnValIleArgThrProAspMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerAspSerThrAlaTrpLeuGlyAspGluGluValAspGlyAlaGlyArgValLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluSerThrLeuPheAspValAlaIleAlaAspGlyArgIleAlaAlaIleAla---Thr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCGCGCC----GACCTGGGCGTGCGCGGCGACCGCATCGCCGATCGGCGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCCCTTCGACCTGCTGCTCGCGGGCGGCACCCTCATCGACGGCAGCAACACCCCGGGG
                                                                                            1053
                                 1113
                                                                                                                          320
                                                                                                                                                         993
                                                                                                                                                                                      300
                                                                                                                                                                                                                     933
                                                                                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                                                                                            813
                                                                                                                                                                                                                                                                                                                                                                                                        753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            111
                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                        220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         276
```

Š

50 B

54 B

밁

B 8

40 A

Ş

5 8 5 8

밁

 5 5 5 5

õ

B 5

```
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
Q9V2D3
Š
                    밁
                                     S
                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                           US-10-009-782-1 (1-1758) x Q9V2D3 (1-526)
                                                                                                             Percent Similarity:
                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                   09V2D3;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                     "Pyrococcus abyssi genome sequence: insights into archaeal chromosome structure and evolution.";
Submitted (JUL-1999) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ248283; CAB49065.1;
                                                                                                                                                                                                                                                                                                                                D-aminoacylase (Aspartate, glutamate NDAD OR PAB0090.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN-ORSAY;
                                                                                                                                                                                                                                                                                                                                                                                             Q9V2D3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1294
                                                                                                                                 No.:
                                                                                                                                                                        Complete proteome
                                                                                                                                                                                 InterPro; IPR002832; Adenine_deam. Pfam; PF01979; Adenine_deam; 1.
                                                                                                                                                                                                                                                 Hellig R.;
                                                                                                                                                                                                                                                                                                          Pyrococcus abyssi.
Archaea; Euryarchaeota; Thermococci; Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1534 CGCCCCCTCCCAACCCTG 1551
                                                                                                                                                                                                                                                                                       NCBI_TaxID=29292;
                                                                                                                                                                                                                                                                                                                                                                                                                                   488 GlnProAlaProGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
118 GCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCCATCGGCGATCTGTCGGACGCCGCC
                              4 TyraspileValileLysAsnGlyLysIleValAspGlyThrGlyAsnProTrpPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - CAGCTGCAGGCCGGGTACTTCGCCGACCCGGTGGTGTTCGACCCGGCCACGGTGGCCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyAlaLeuSerTyrArgAspGlyAlaValGlnProArgArgAlaGlyArgPheLeu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGCCGCATCCATTCCGTGTACGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuValArgGluGlyTrpTrpAlaAspLeuValLeuPheAspProAspThrValArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCCGGGCGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGGGCCTGGTCCCGGCTGGAG
                                                                                                                                                                                                                                                                                                                                                  (TrEMBLrel. 13, Created)
(TrEMBLrel. 13, Last sequence update)
(TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ArgArgGlyPro--
                                                                                                                                                                8
                                                                               6.49e-40
942.00
55.56%
40.11%
28.55%
                                                                                                                                                                58790 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                    493
                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                               705B1B7B281915A0
                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                          ETC).
                                                                                                                                                                                                                                                                                                                                                                                            526
                                                                                                                                                                CRC64;
                                                                                526
213
82
172
64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ArgAlaHisAla
                                                                                                                                                                                                                                                                                                           Thermococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1173
177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   400
                    23
                                       117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380
```

```
1048
                                                        356
                                                                                         988
                                                                                                                          336
                                                                                                                                                           934
                                                                                                                                                                                           316
                                                                                                                                                                                                                              916
                                                                                                                                                                                                                                                                 296
                                                                                                                                                                                                                                                                                                                                      276
                                                                                                                                                                                                                                                                                                                                                                       865
                                                                                                                                                                                                                                                                                                                                                                                                         256
                                                                                                                                                                                                                                                                                                                                                                                                                                            805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24
                                                                                                                                                                                                                                                                                                                               IleGluIleThrLeuAspValTyrProTyrThrAlaGlySerThrTyrLeuAlaAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                  GluValGluPheLysTrpArgSerTyrGlyGluPheLeuAspAlaLeuGluGluValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACCTGGATGAAGTCGCGGCCGAGCGCGCAAATCCAAGTACGACGTGGTGCCCGAGCTG 1047
                                                                                                                                                            GCCGGA----
                                                                                                                                                                                        ArgLysLysIleArgGluPheIleGluThrArgAspAspTrpGlnAsnPheIleLysGlu 335
                                                                                                                                                                                                                                                           LeuProProTrpValHisGluSerGlyLysIleLysGluArgCysArgAspGluGluThr
                                                                                                                                                                                                                                                                                                                                                                 ---GACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgIleGlyArgGluSerGlyValArgValGluValSerHisHisLysValSerGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCATCGGCCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGCCACCAACGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyMetGluAlaArgAspProThrGluGluGluLeuGlyArgMetLysGluLeuLeuAla 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProLeuGlyThrAsnPheValGlyLeuValGlyHisGlyThrLeuArgIleAlaValMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCCGGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------GluMetLeuAspValLeuLysSerTyrValGlyIleLeuGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTAC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnValThr---IleAspAlaSerAsnLeuIleValAlaProGlyPheIleAspMetHis
                                                   SerLeuLysGluIleSerAspLeuLeuHisArgAspProPheAspValLeuPheAspIle
                                                                                                                      AlaGlyTrpGluAsnIleIleIleThrH1sSerGluAsnPheProGluPheValGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrSerLysThrTrpGluLeuIleGluLeuAlaMetValValAlaLysTyrGlyGlyIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCGCGGCCCATGCGGGACCTGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaHisAspAspLeuIlePhePheLysAspArgPheAsnArgAlaLysLeuLeuGlnGly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCAC
                                                                                                                                                         CGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGC 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----CGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACG
-CAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGAACCGTG
                                                                                                                                                                                                                            ------CAGGACCGCGTGCTGCTG
                                                                                                                        355
                  1092
                                                    375
                                                                                                                                                                                                                                                                                                                                                                     915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43
```

5 B 5

5 8 5

밁

밁

S

S

9

120

5 B

밁

```
Best Local S. Query Match: DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                               RRAPARA RAPARA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     몆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
US-10-009-782-1 (1-1758) x Q93JK8
                                                                                                                      Pred. No.:
                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                         Bentley S.D., Chater K.F., Cerdeno-Tarraga A.-M., Challis G.L., Thomson N.R., James K.D., Harris D.E., Quall M.A., Kideser H., Harris D.E., Chandra G., Chen C.W., Collins Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth Huang C.-H., Kideser T., Larke L., Murphy L., Oliver K., O'Neil S. Rabbinowitsch E., Rajandream M.A., Rutherford K., Rutter S., Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor Warren T., Wietzorrek A., Woodward J., Barrell B.G., Parkhill J.
                                                                                                                                                                                      coelicolor A3(2).";
Nature 417:141-147(2002).
EMBL; AL591857; CAC40599.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces coelicolor.

Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Streptomycineae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-DEC-2001 (TREMBLrel. 19,
01-DEC-2001 (TREMBLrel. 19,
01-JUN-2002 (TREMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-A3(2) / M145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1330
                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q93JK8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1093 CAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAG 1152
                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SCO4986 OR 2SCK36.09C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Putative
                                                                                                                                                                                                                                           Complete genome sequence of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID-1902;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGCATGCCGGCCGCGTGCTCGCACGCACGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyIleLysTyrValIleValAsnGlyValLeuSerValGluAsnGlyGluLeuThrGly 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAGGCGTTCACCGGC 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ::: |||||| :::::: ||| :::|||||||||||:::
LysLeuGlyLeuLysAspArgGlyLeuValLysGluGlyMetTrpAlaAspLeuValIle 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyLeuProH1sProArgAlaTyrGlyThrPheProArgValLeuGlyArgTyrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheAspProHisArgValLysAspArgAlaThrTyrThrAsnProArgLeuProProAsp 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLysLysLeuLeuArgLeuGluAspAlaIleArgLysMetThrSerLeuProAlaLeu 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCCGCC 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluArgIleLeuSerHisProTyrSerMetIleGlyThrAspGlyLeuAspSerGlyGlu 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaLysAspGlyThrAsnAlaGlyMetIleValPheLeuMetSerGluGluAspVal 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspAlaGlyGlyValValIleArgArgThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTTCGGCCTGGCCGGGCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTG 1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---CGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGGCACTATGCGCGC 1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D-aminoacylase.
                                                                                                                                                                          536 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                1.52e-25
656.50
48.23%
34.45%
19.90%
                                                                                                                                                                           58137
                                                                                                                                                                          XX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
(1-536)
                                                                                                                                                                          5585F5AB6D08E759
                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                          model actinomycete Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₹
                                  536
185
74
208
71
                                                                                                                                                                                                                                                                                                 Taylor K.,
                                                                                                                                                                                                                                                                                                                                 s:
                                                                                                                                                                                                                                                                                                                                                ς;
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                435
```

```
218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                673
                                                                                                                                                                                                                                                                                                                                                            278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           283 AAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23
                                          GCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATC 1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrGlyGlyTyrTyrCysProHisHisArgSerTyrGlyAlaGlyAlaLeuLysAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgLeuYalAlaGluGlyLeuGluGlnGlyAlaValGlyLeuSerSerGlyLeuThrTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysGlnArgProGluAlaArgArgGluLeuAspAlaGluGlyLeuValLeuSerProGly
AlaLeu-AlaGluTyrValGlyArgThrValLeuGluSerAlaArgLeuArgGlyGluSe
                                                                                    GlySerHisGlyValProMetGluTrpGluThrIleGluIleSerGlyThrGlyAspPro
                                                                                                                                                                           LeuAlaAspAspThrAlaGluArgIleArgHisHisMetGluValIleGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                                           ATGGCG----CGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCAT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluGluMetValGluLeuThrArgGluAlaGlyCysProLeuHisLeuAlaHisAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrProGlyMetTyrAlaLysAspAlaGluLeuThrGluLeuCysArgValValAlaSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCTGGCCGAGGAAGCCATGGCCAGCGCGCCATCGGCATTTCGACCGGCGCCTTCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaLeuAlaValGlyTrpAspAspArgGluAlaThrGluAlaGluLeuGluHisMetArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCTGGGCGTGCGCGACCGCCATCGCCGATCGGCGATCTGTCGGACGCCGCC---
                                                                                                                                                                                                                                                              LeuValAlaLeuLeuProSerTrpAlaSerGluGlyGlyProGluGlnIleLeuLysArg
                                                                                                                                                                                                                                                                                                                                                   LeuAlaGlyGlyAlaAspIleThrLeuAspThrTyrProTyrThrProGlyCysThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAAAATCGCGGCCATGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValAspAspArgThrLeuGlyGluValArgArgAlaIleAlaGlyTrpAsnGlyHisGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheIleAspMetHisAlaHisSerAspLeuAlaLeuLeuArgAspProAspHisSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leu---AspargGlyIlealaValasnalaalaTyrLeuIleProGlnGlyThrValarg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspaspValasp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysAlaAlaGlnGlyValThrLeuGluValIleGlyGlnAspGlyLeuSerTyrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspValValValAspGlyGlyArgIleValSerIleValLysGluAlaAlaAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuValIleArgAspAlaAspValValAspGlySerGlyGlyAspSerTyrArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---GCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGC
                                                                                                                                                                                                                    GCTGCTGGCCGGACGCACCATCATCACCTGGTG---
                                                                                                                                                                                                                                                                                                           -----GCTCAAGCAGGACCGCGT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --PheAspTrpArgSerValGlyGluTyrLeuAspArg 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             --------GCGCACGCCAACCGCCCGCCCCCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            =
                                                                                                                                 -----CAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                      959
                                                                                                                                                                                                                                                                317
                                                                                                                                                                                                                                                                                                           926
                                                                                                                                                                                                                                                                                                                                                   297
                                                                                                                                                                                                                                                                                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22
```

õ 밁 S 밁 S 밁 · 5 밁 Ş 믕 S 밁 S 밁 S 밁 S 맑 Š 밁

묽

US-10-009-782-1 (1-1758) x Q9A2U6

(1-581)

5 B 5

5 8 5

밁

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                  SO DER READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF THE READER OF
                                                                                             Percent Similarity:
                                                                                                                                                           Pred. No.:
                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                      Nierman W.C., Feidblyum T.V., Laub M.T., Paulsen I.T., Nelson K.E., Eisen J., Heidelberg J.F., Alley M.R.K., Ohta N., Maddock J.R., Potocka I., Nelson W.C., Newton A., Stephens C., Phadke N.D., Ely B., DeBoy R.T., Dodson R.J., Durkin A.S., Gwinn M.L., Haft D.H., Kolonay J.F., Smit J., Craven M.B., Khouri H., Shetty J., Berry K., Utterback T., Tran K., Wolf A., Vank Khouri H., Shetty J., Berry K., Utterback T., Tran K., Wolf A., Wank Khouri H., Shetty J., Berry K., Salzberg S.L., Venter J.C., Shapiro L., Fraser C.M.; "Complete genome sequence of Caulobacter crescentus."; "Proc. Natl. Acad. Sci. U.S.A. 98:4136-4141(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9A2U6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vi-Jun-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Hypothetical protein CC3460.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1428
                                                                                                                                                                                                                                         Hypothetical protein; Complete proteome.
SEQUENCE 581 AA; 60964 MW; 64259747EECAA720 CRC64;
                                                                                                                                                                                                                                                                                                          EMBL; AE006004; AAK25422.1; TIGR; CC3460; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-ATCC 19089 / CB15;
MEDLINE-21173698; PubMed-11259647;
Nierman W.C., Feldblyum T.V., Laub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Caulobacter crescentus
Bactería; Proteobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1023 CAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCGGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caulobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CBI_TaxID=155892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STYTLEUG1YH18TYTValArgGluLeuG1YValLeuProLeuGluGluCysValAlaH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tGluAspGlyArgArgThrAspValLeuAlaGlyArgSerValArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAAGAGCAGGCGTTCACCGGCCAGCATGCCGGCCGCGTGCTCGCACGC 1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yTyrArgAlaAspLeuValLeuPheAspProAlaThrValAlaAlaGlySerSerPheAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGA 1367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sLeuThrSerArgProAlaAlaArgLeuArgLeuProAspArgGlyLeuValArgGluGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |||||||||:::
ySerAspGlyIleLeuGlnGlyAlaLysProHisProArgAlaTyrGlyThrPheProH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCCGACGGCCTGCCGCACGACGACGCCCCCCATCCGCGCCTGTGGGGCCACCTTCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nHisvalGlyHisGluGluAsnValArgAlaIleMetArgHisArgValHisThrGlyGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rProTrpThrValAlaArgHisLeuLeuLeuAlaAspArgLeuAlaProThrIleLeuGl
                                                              Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Proteobacteria; alpha subdivision; Caulobacter group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
      5.51e-13
407.00
38.58%
27.98%
12.34%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                       Length:
Matches:
Conservative:
   Gaps:
                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
169
64
229
142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --GCCATCTA 1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1127
```

SOR PRANCE OF THE COMMENT OF THE COM	)	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 QY	
D Q905K9 PRELIMINARY; PRT; 608 AA.  C Q905K9; PRELIMINARY; PRT; 608 AA.  C Q905K9; PRELIMINARY; PRT; 608 AA.  O1-MAY-2000 (TrEMBLrel. 13, Created)  O1-MAY-2000 (TrEMBLrel. 13, Last sequence update)  NTR.  NTR.  STRAIY-2000 (TrEMBLrel. 13, Last annotation update)  E Herpesvirus papio.  C Viruses; dsDNA viruses, no RNA stage; Herpesviridae;  C Viruses; dsDNA viruses, no RNA stage; Herpesviridae;  C Viruses; dsDNA viruses, no RNA stage; Herpesviridae;  C Viruses; dsDNA viruses, no RNA stage; Herpesviridae;  C VIRUSES; Havilous, Lymphocryptovirus.  NCBI_TaxID-10394;  NCBI_TaxID-10	549 AlaGlyValValThrGlnArgAapGlyGluProThrGlyAlaLeuProGlyArgLe 471 GCACGCACGCCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGGC          568	ACCCGGCCACGGTGGCCGATACCGCCACCTTCGAA 1	1150 GAGCGCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCG 1206	928 CTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGCC 987  358 ProPheAlaGlySerAlaLeuArgAlaTrpAspAsnLeuTyrProMetGlyGlyVal 376  988 GACCTGGAT

237 ose 695 ACA 695 OAr 256 OAr 749 TCG 749 TCG 749 TCG 11 276 DAT 809 ATT	01 GTTTCGAGC 66 61 CCGCCTGTA 61             78 la-Pro 7 TGGCCGAGG 7 TGGCCGAGG 7 TGGCCGAGG 1       9ProThr 4 CGCCCGCCG 4 CGCCCGCCG 8 8	140 ACCGCATCC	Alignment Scores:  Pred. No.:  Score:  Geore:  Percent Similarity:  Best Local Similarity:  Ouery Match:  DB:  Us-10-009-782-1 (1-1758) x 0905  Oy  32 CCATGTCCCAATCCGATTCCC.
	TTGCGGGCCA	ATCTGTCGGACGlyF GCTTCATCGAC	1 Length: Matches: Conservative: Mismatches: Indels: Indels: Gaps: K9 (1-608) K9 (1-608) FOPTOALAPHE-GINVALHI:
ProGlyProArgSerPr 256 CTGGAGGAAACCTTCCGCA 748 COPTOPROGLYALBGLYG1 276 AAGGTCATGGGCCAGCCCA 808	ProGlyA 16 51 uArgArg 17 uArgAcc 55	GACGTGT 1 LabroG1 8 GGACAACT 2   ::: rgArgAr 9 GGTGGTCA 3    1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1 LybroTh 1	608 196 28 26 26 36 161 161 161 33 33 33 33 33 33 33 33 33 33 33 33 33

		' :		
	u 585	585	p D	
	G 1745	1745	νQ	
585	oSerGlyProThrGlyGlyHisProAlaAlaProGlyAlaProGlyProProAsnProGl	565	밁	
1744	-	1697	Ϋ́	
565	uArgArgGlySerAlaGlnArgGlyH1sProProProGlyAlaGlyGlnArgPr	546	뭥	
1696	•	1637	Qy	
546	GlyAlaProGlyProArgSerProArgThrGl	532	뮍	
1636	GATGGGCGCGCGCCC	1589	Qy	
532	gGlyHisProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyHisPr	513	Д	
1588	TACATGGCCCCCCCCCCCCCCCCCA	1536	Qy	
513	ProGlyAlaproGlyProArgSerPro-ArgThrGluArgArgArgGlySerAlaGlnAr	494	В	
1535 ·	CCCGGCGCCAGCCCTTACAATCCGGCGTGAACGGGCGGCGTGCCG	1490	Qy	
493	HisProProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyHisProAlaAla	474	밁	
1489 .	TCACCGGCCAGCATGCCGCCGCGCGTGCTCGCACGCACGGCCGGC	1442	Qγ	
473	GlyAlaProGlyProArgSerProArgThrGluArgArgArgGlySerAlaGlnArgGly	454	밁	
1441		1388	ν.	
453	OPTOPTOGLYALAGLYGLAATGPTOSETGLYPTOTHTGLYGLYHLSPTOALAALAPTO	434	탕	
1387	TCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCG	1331	δ	
434	rProArgThrGluArgArgGlySerAlaGlnArgGlyHisPr	419	문	
1330	GCTTCGGCCTGGCCGGGCCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGT	1271	Qy	
419	OThrG1yG1yH1sProAlaAlaProG1yAlaProG1yProArgSe	404	밁	
1270	TGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGC	1214	Ωy	
404	gArgGlySerAlaGlnArgGlyHisProProProGlyAlaGlyGlnArgProSerGlyPr	384	탕	
1213	GCCCGCATCCGCGCCTGT	1154	Qy	
384		365	뮍	
1153	AGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCCACGACGAGC	1094	Q.	
365	?ProProProGlyAlaGlyGlnArgProSerGlyProThrG1	352	рb	
1093	TGGTGCCCGAGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGC	1034	Qγ.	
351		339	뮍	
1033		974	Qγ	
339		319	말	
973		929	Qy	
319		315	Дb	
928	TCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAA	869	γQ	

RESULT 7
Q8UZE1
ID Q8UZE1
AC Q8UZE1;

PRELIMINARY;

PRT; 890 AA.

```
Jiang H.,
Submitted
                                                                                                                                     Moghaddam
Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2002
01-MAR-2002
01-MAR-2002
                                                                                                                                                                                                                                              MEDLINE-21602573; pubMed-11739708;
Rivalller P., Jiang H., Cho Y.-G., Quink C.,
"Complete Nucleotide Sequence of the Rhesus L
Validation for an Epstein-Barr Virus Animal M
J. Virol. 76:421-426(2002).
                                                                                                                                                                                                                                                                                                                                       Rao P., Jiang H., Wang F.; "Cloning of the rhesus lymphocryptovirus viral capsid antigen and Epstein-Barr virus-encoded small RNA homologues and use in diagnosis of acute and persistent infections."; J. Clin. Microbiol. 38:3219-3225(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=20304984; PubMed=10846073; 
Jiang H., Cho Y.G., Wang F.; 
"Structural, functional, and genetic compendent antigen 3A, 3B, and 3C homologues lymphocryptovirus."; 
J., Virol. 74:5921-5932(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-99412410; PubMed-10482645;
Rivallier P., Quink C., Wang F.;
"Strong selective pressure for evolution of an E
LMP2B homologue in the rhesus lymphocryptovirus.
J., Virol. 73:8867-8872(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cercopithicine herpesvirus Viruses; dsDNA viruses, no Gammaherpesvirinae; Lymphoc NCBI_TaxID-104228;
SEQUENCE FROM N.A.
                                           SEQUENCE FROM N
STRAIN-LCL8664;
                                                                               Submitted
                                                                                         STRAIN-LCL8664;
Rivailler P., (
                                                                                                                                              STRAIN-LCL8664;
Moghaddam A., A
                                                                                                                                                                                                                 STRAIN-LCL8664;
                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                            STRAIN-LCL8664
                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIINE-97048062; PubMed-8892903;
Franken M., Devergne O., Rosenzweig M., Annis B., Kieff E., Wang F. "Comparative analysis identifies conserved tumor necrosis factor receptor-associated factor 3 binding sites in the human and simian Epstein-Barr virus oncogene LMPl.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20440633; PubMed=10970361;
                                                                                                               EQUENCE FROM
                                                                                                                                                                    EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EQUENCE FROM N.A.
                                                                                                                                   A., Annis E
(MAR-1997)
                     Wang F.;
(JUN-1999)
                                                                             P., Quink (MAY-1999)
                                                                                                                                                                                          A., Koch J., 1
(MAR-1997) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.)
                                                     N.A.
                                                                                                              N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pesvirus 15.
uses, no RNA stage; !
; Lymphocryptovirus.
                                                                                                                                     ዩ.
ያ
                                                                             ያ;
ያ
                     ៥
                                                                                                                                                                                            Annis
                                                                             Wang
                     the
                                                                                                                                     Wang
the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20, Created)
20, Last sequence update)
20, Last annotation update)
                    EMBL/GenBank/DDBJ
                                                                                                                                                                                         B., Wang F.;
EMBL/GenBank/DDBJ
                                                                           EMBL/GenBank/DDBJ
                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                        .
.
                                                                                                                                               Ξ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               comparisons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Herpesviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of an Epstein-Barr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      encoded
                                                                                                                                                                                                                                                            Lymphocryptovirus: Model.";
                                                                                                                                                                                                                                                                                 Wang
                                                                                                                                 databases
                    databases
                                                                                                                                                                                         databases
                                                                            databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                               d of
                                                                                                                                                                                                                                                                                  .
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Epstein-Barr
y the rhesus
                                                                                                                                                                                                                                                                      Genetic
```

```
õ
                                                    밁
                                                                                                     밁
                                                                                                                            Š
                                                                                                                                                        밁
                                                                                                                                                                              Ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment :
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-009-7.82-1 (1-1758) x Q8UZE1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SARASARAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-LCL8664;
Rao P.V., Jiang
Submitted (JAN-2
[11]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rivailler P., Jiang H., Cho Y.-G., Quink C., v
Submitted (JUN-2001) to the EMBL/GenBank/DDBJ
EMBL, AY037858; AR495470.1; -
SEQUENCE 890 AA; 95097 MW; 149077C89D3B557
                                                                              617
                                                                                                       216
                                                                                                                                                        198
                                                                                                                                                                                                       178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N
                                                                                                                              569
                                                                                                                                                                               521
                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                       161
                                                                                                                                                                                                                                                                                                                                                           125
                                                                                                                                                                                                                                                                                437
                                                                                                                                                                                                                                                                                                         143
                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                  377
                                                                                                                                                                                                                                                                                                                                                                                   326
                                                                                                                                                                                                                                                                                                                                                                                                                                    266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       108
                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51
ProProAlaProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyHisProPro
                                               ThrArgGlnArgProGlyH1sProProProGluArgGlySerGlyProArgGlyThrArg
                                                                                                                                                                                                                                                                                                                                                                                 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                   {\tt GlyProArgGlyThrArgProProAlaProSerSerArgThrGlyGlnArgThrArgGln}
                                                                                                                                                                                                                                                   CCATGGCCAGCGGCGCATCGGCATTTCGACCGGCGCCTTCTACCCGC-------
                                                                                                                                                                                                                            GCGCCGCGTCATGCCGGACTTGCAGCGCG-----
                                                                                                                                                                                                                                                                           GGG-----CCACGCCGGCCGGCCGTCAACGCCGCCTGTATGGTGGGCCCATTCAACGCTGC
                                                                                                                                                                                                                                                                                                                                                      ProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyH1sProProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyThrArgProProAlaProSerSerArgThrGlyGlnArgThrArgGlnArgProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCGCGC----CCGGCTTCATCGACTCGCACACCCACGACAACTACCTGCTCAGGC 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlnArgThrArgGlnArgProGlyH1sProProFroGluArgGlySerGlyProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProProGluArgGlySerGlyProArgGlyThrArgProProAlaProSerSerArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGGCGGCGCCGACCTGGG----CGTGCGCGGCGACCGCATCGCCGATCGGCGATCT 164
                                                                                                                                                    ArgProGlyH1sProProProGluArgGlySerGlyProArgGlyThrArgPro-----
                                                                                                                                                                                                                                                                                                    -----GluargGlySerGlyProargGlyThrargProProalaProSerSerargThr
                                                                                                                                                                                                                                                                                                                             TGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCGGACGCCGCGCACACCCCGGGT------CGACGTGTCGGGCCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProAlaProGlyProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyHisPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGCCCTTCGACCTGCTCGC---GGGCGGCACCCTCATCGACGGCAGCAACACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scores:
                                                                                                                                                                             Jiang H., 1
(JAN-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                                                                          ----ProProGluArgGlySerGlyProArgGlyThrArgProProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1.53e-09
339.00
35.69%
29.35%
10.28%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ...
                                                                                                   -----ProAlaProSerSerArgThrGlyGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1-890)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        149077C89D3B5574 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wang F.;
J databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        199
199
43
259
178
                                                                          -GCGCCA
                         691
                                                245
                                                                           631
                                                                                                   225
                                                                                                                                                                                                                                                                                                                              436
                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                            616
                                                                                                                                                  215
                                                                                                                                                                           568
                                                                                                                                                                                                  197
                                                                                                                                                                                                                           520
                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                            490
                                                                                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                                                                                                                                               376
                                                                                                                                                                                                                                                                                                                                                                                                        124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                                                                                                                                                                                                                                                                                                      142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
```

1645	1586 GCAATACGGCCCCACCCGATATCGTGGGCAAGGAAGTGATGGGCGCGCGC	γ
593	576 oGluArgGlySerGlyProArgGlyThrArgProProAlaProSerSerArg	D
1585		γQ
576	565 nArgThrArgGlnArgProGlyHisProProPr	뭥
1540		γo
565	547 gGlySerGlyProArgGlyThrArgProProAlaProSerSerArgThrGlyGl	DЬ
1480		γQ
547	528 oSerSerArgThrGlyGlnArgThrArgGlnArgProGlyHisProProProGluAr :	Д
1420	ccc	ΥO
528	508 gProGlyH1sProProGluArgGlySerGlyProArgGlyThrArgProProAlaPr :	망
1378		Qγ
508		문
1318	GCAGGCCGGGTACTTCGCCG	Qy
488	ProProProGluArgGlySerGl	В
1265	CCTGACCGC	Qy
468	449 sProProProGluArgGlySerGlyProArgGlyThrArgProProAlaProSerSe 4	D.
1231	CTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCCTGTTCCCGCTGG	Qy
449	429 yThrArgProProAlaProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyH1 4	<b>B</b>
1177		οy
129	:::	당
1144		Ş
412	393 GlySerGlyProArgGlyThrArgProProAlaProSerSer-ArgThrGlyGlnArgTh 4	문
1084		Qγ
392	373 ProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyH1sProProProGluArg 3	문
1030	971 CCGAACTGAGCGGGCGACCTGGATGAAGTCGCGGCCGAGCGGCGAAATCCAAGTACG 1	Qy
372		B
970	953CCTGGT	Qγ
352	333 GlyProArgGlyThrArgProProAlaProSerSerArgThrGlyGlnArgThrArgGln 3	В
952	917 AGGACCGCGTGCTGGCCGGACGCACCATCATCA	Qγ
332	313 SerArgThrGlyGlnArgThrArgGlnArgProGlyHisProProProGluArgGlySer 3	рь
316	CAAGC S	δō
312		DЬ
859	CGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGC	ργ
292	rgPro	망
802	SAGCTGGACGTGCCGGTGATCTCGCACCACAAGGTCATGGGCC	Qy
. 08	266 ProGluArgGlySerGlyProArgGlyThrArgProProAlaPro 2	밁
/51	692 CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCGCG	ρ

161	8 8	2 5	\$ 5	₽ ·	& B	δ β	. 5	문	γΩ	B &	. <b>D</b>	Qγ	В	δ	8 5	}	. <b>Q</b>	문	5 5	ş	문	<b>5</b> 5	, 6	b B	ρ	밁	φ.	B :	γQ
CGCCCCCCCCGCGACCAACGCGGCCTTTTCCAACGCTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCACTTTTCCCCCACTTTTCCCCCACTTTTCCCCCC	37	, w	23	332	312 1202		1106	278	2 5	ு வ	ហ	926	235	87:	220	20	G	œ	72	1 66	15	60	. U	13	48		4	H 9	ω
	CledicaGCTGCAGGCCGGGTACTTCGCCGACCT	ProGlnGlyLeuGluGlyAlaAlaGlySerArgArgHisProHisArgLeuArgAl	GACGGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCTTCGGCCTGGCCCGGGC 128		u <sub>l</sub>	(43	114	292	TGCAGCCGGCCGCCATCTACTTCATGATGGACGAACCCGACGTGCACGTGATGAT 278	GCGACCTGGATGAAGTCGCGGGCGAGCGCGGCAAATCCAAGTACGACGTGGTGCCCCGAGC 104	gAlaAlaHisArgGluAlaLeuHisLeuArgLeuGlnArg	TGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGC 98		O JAKINGTENTALESKAJINGTAKATOROODOODOODOODOODOODOODOODOODOODOODOODOO	"CGGCCGCTCGCCCAGACGCCTGCCGCTGATCGAGGCCCCATGGCGCCCAGGACGTCT 8	gProArgAspProArgAlaGlyHisHisProLeuArgGluGlyGlyGlnGlyGlnGluAl 2	GCCGCGAGCTGGACGTGGTGGTGATCTCGCCACCACGACGTCGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTG		YLEUHisargargargargargalaargar 1 TGGCCGCGCTGGAAGAAACCTT	CGCTGAGCGCGCATGGCGGCATCTACGCCACACATGCGCGACGAAGGAGGCGAGCACATCG 7		GALBATGGLYGLUATGGLYATGGLY	CGGCCATGCGGGACCTGGCCAAGGAAGCCATGGCCAGCGGCGCCCATCGGCATTTCGACCG	8ProAlaArgArgClyValLeuArgArgHisArgArgHisAr 1	2 CAACGCTGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAATCC	:::	ACCTGGACGCGTTGCGGGCCAACGCCACGCCCCCTCAACGCCCCCCTCAACGCCCCCCCC	INTERPRETATION   INTE	N

	•						•												*	
Db Qy	₽ . ¥	9 5	9 d dy	US-10	Alignmer Pred. NC Score: Percent Best Loc Query Ma		8888888 888888		· RESU	Дb	0	B 정	B &	₽ ₽	ρ	д <sub>.</sub>	Qy to	, 15 5	₽ .	۷٥
180GACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCC 218	132 GCGCGGCGATCGCCGCATCGGCGATCTGTCGGACGCCGCCGC 179	26	45 CGATTCCCAGC         6 ArgGlyProCy	-009-782-1 (1-1758) x Q99307 (1-924)	tt Scores: 1.94e-09 Length: 92 337.00 Matches: 21 Similarity: 34.58% Conservative: 30 al Similarity: 30.26% Mismatches: 21 tch: 10.22% Indels: 16 L2 Gaps: 31	SEQUENCE FROM N.A. PATKET B.D., Bankler A., Satchwell S., Barrell B., Farrell P.J.; Virology 0:0-0(1990). EMBL; M35547; AAA45896.1; SEQUENCE 924 AA; 94304 MW; 3C7CC86297F0E0F4 CRC64;	Epstein-barr virus (strain Raji) (Human herpesvirus 4). Viruses; dsDNA viruses, no RNA stage; Herpesviridae; Gammaherpesvirinae; Lymphocryptovirus. NCBI_TaxID=10378;	01-NOV-1996 (TrEMBLrel. 01, Created) 01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-FEB-1997 (TrEMBLrel. 02, Last annotation update) LF3 protein.		492 laalaargargProThrThrSerSerSerIleSerArgSer 505	7 CGGAAAATGACCCTGCAAGACCTGCAAGGCC 1600	CC 16	1344 CAACCCTGGACGCAAACCGCTACATGGCCCCTCCGCTCGCAATACGGCCCCAC 1600	450 lyLeuLeuCysArgAspSerValGluSer45	C 15	:            	410 aviyaigaigaigaigGiyValDroSerGlnLeualaValLeuArgGlnGiyValCysGi 430	CTACCGAGCGCGCCGCCGCATCCA	392 gArgGlyProArgGlnGlyGlnGlyAlaHisGlyGlyGlnGlyLeuArgHisAl 410	

OCCAMENCICICAGACGTCTCCCTGCA	Db 25 Db 25 Db 27 Db 27 Db 28 Db 30 Db 30 Db 32 Db 32 Db 32 Db 32 Db 32 Db 34 Db
OAY CUCKTIGGUCICGCCAGACGTCTCGCTGGACGCG	
ON CUCKTIGUCUCICAGGACGTCTCCGTGACGC	w 5 w 5 w w w w w m m m m m m m m m m m
O49 CUCLATGUCUCICAGGACGTCTCGCTGGA	
OAY CUCKATGEGUCGCCAGGACGTCTCGCTGGA	
949 CUTCEACCATGAAGCAGGACGTCTCGCTGGA	
804 GCCCAATTTCGGCCGCTGCGCGAGACGCTGCCGCTG :::::    287 ThrArgLeuGlnProAlaThrProArgArgSerGlyAlaAlaA	
7-3 CUSCUMBETEGREGIEGEGEGEGEGEGEGEGEGEGEGEGEGEGEGEGEG	
693 CCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAG	
642GATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGC.	
13 9	
0 0	N) (n
80 7	
414 CECCGACTACCTGGACGCCGTTGCGGGCCACGCCGGCGGCCGCCGTC	D 49
- 4	
ν ν ω	
0	
7 B H	, ,
ACAACTACCTGCTG	79 79 39 39 69 69

																٠									
Qy 815 815	2491	AspLysCysGluH1sTh	QY 752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGG 793	UY 592 CUCACATGUGGAAGGCAAGGCACATCGTGGCCGCGCTGGAAGGAAACCTTCCGCATCG 751	2434	OY 632 CCACCGAAGAGATCATCGAGGTGTGCCGGGCGCGCGTGAGCGCGCATGGCGGCATCTACGCCA 691	Db 2416 ProProProSerAlaProAlaAlaThrProThrProProAlaProGlyPro 2433	2401 AlaproproproproceralaglnThrThrLeuproArgproAla	Db 2383 AlaproproproproSerAlaGlnThrThrLeuproArgproAlaAlapropro 2400 Ov 515 AGCGCGCCGCCACCGACGAAGGAAATCGCGGCCCATGCCCCACCGACGCATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCCACGATGCCTTCCACGATGCCTTCCACGATGCCTTCCACGATGCCTTCCACGATGCCTTCCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACGATGCTTCACACGATGCTTCACACGATGCTTCACACGATGCTTCACACACA	455 TCAACGCCGCCTGTATGGTGG	QY 401GTTTCGAGCGCTTCGCCGACTACCTGGACGCTTGCGGGCCACGCCGGCCG	2344Gln	344 TGGCGCACGCCAACCCCGCCCGCCCCCCTGGACCTTGCACCACGACGAAGGCCGCCTTTTTACC	QY 284 AGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGC 343	Oy 224 TCATCGACTCGCACACCACGACGACGACTACCTGCTCAGGCGTCGCGACATGACGCCCA 283 :::	2300 GlyProProProProGlnProProSerAlaGlnAlaProProAlaGlnLysProPro		Qy 125 TGGGCGTGCGCGGACCGCATCGGCCATCGGCGATCTGTCGGACG 172	QY 65 TGCTGCTCGCGGGCGCGCTCATCGACGGCAGCAACACCCCGGGGCGGCGCGCGC	. 2253		0.03% Indels: 2 Gaps:	Pred. No.: 4.53e-09 Length: 3084 Score: 31.00 Matches: 187 Percent Similarity: 32.728 Conservative: 45 Best Local Similarity: 26.388 Mismatches: 269	Alignment Scores:	SECTIONCE 3084 AA. 334401 MJ.
Qy	DЬ	Q V	, 50 50	Db (	δ D		DЬ	6 B	Ø (	B 5	d <sub>d</sub>	OV Db	Qy	Db dy	B .	8 B	γ	₽ <b>Q</b>	p	£ £	Q.	P 29	Db Qy	Db	
1594 GCCCCACCCGATATC	2841 pTh	1552 GACGCAAACCGCTAC			2781 ralaproalaalapr	1441 TTCACCGGCCAGCAT	2761 aAlaAlaAlaAlaAl	2741 oLeuAlaAlaProTh	1390 GGCATCCATTCCG-	1334 ACCCGG-CCACGGTG	::: 2701 aGlyHisLeuArgLe	2689 y	1241 TATGGAAGATGACCG	1184 CGCGGGTGCTGGGGC		2630 gGlnThrGlyGlyLe	1070 TCATGATGGACGAAC	1019 AATCCAAGTACGACO :::          2611 AspHisser-Arga	2591 AlaGlnProLeuPro	2571 OAlaAlaAspAlaSe		839 TGATCGAGGCCGCC	816	2511 aserAlaSerSerSe	÷

			•	
04 pp	0	Qy Qy Db Db	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Db 2821 tPheThrProProLeuProProGlnProSerGlnGlnArgProProGluAlaProTr 2841  Oy 1552 GACGCAAACCGCTACATGGCCCCTC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	2669 OAIAAIAAIAAIAAIAAIAAIAThrAIAAIAVAIPTOAIAPTOGIYVAIGIYPTOGIYGI  1241 TATGGAAGATGACCGGCCTGACCGCGCGCGCGCTTCGGCCGGC	1019 AATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCCGG	Db 2511 aSerAlaSerSerSerAlaAlaSerThrProSerArgGluAlaAlaSerSerSerSerSe 2531  Qy 816
	· <i>.</i>			

	o 158	GCCGGGTCGAACACCACCAGGTCGG 1	Db 129 GlyProArgSerProArgThrGluArgArgArgArgGlySerAlaGlnArgGly 145	1436 COMOMBOO CONTRACTOR OF STREET CONTRACTOR OF ST	6CCT 1	90 ArgSerProArgThrGluArgArgArgGlySerAlaGlnArgGlyH1sProProFroGly 109	CGCCGGATTGTAAGGGCTGGC 1	OY 1561 GGTTTGCGTCCAGGGTTGGGAGGGGCGGCACCGCG	50	15	30 ThrTrpGlyProCysProAlaProSerProPro	15 - 15 - 15 - 15 - 15 - 15 - 15 - 15 -	Qy 1687 CCTGCGACAGGTCTTGCAGGGTCATTTTCCGGGGCCTTGGCGCGCGGAGGCGCGGGC 1628	US-10-009-782-1 (1-1758) x Q9Q5K9 (1-608)	9.93% Indels: 12 Gaps:	SCOTE: 322.00 Matches: 188 Percent Similarity: 32.71% Conservative: 22 Best Local Similarity: 29.28% Mismatches: 244	ent Scores: No.: 1.05e-08 Length:		Hayward G.S.; Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases.	RC STRAIN-BABOON LYMPHOCRYPTOVIRUS BA65; RA Zong JC., Ryan J., Ling P.D., Loeb D.D., Pagano J.S., Hayward S.D.,		Gammaherpesviri	NIK. Herpesvirus papio. Viruses: dsnNA viruses no pan etago.		01-MAY-2000 (TrembLrel. 13, Created)		RESULT 11 Q9Q5K9	Db 2880 oProGinProLeuTrpAla 2886	Oy 1714 TCCAAGGCCGAGCTGGGCC 1732			Db 2857 rProProProSerAspProProValGlnph 2867
Qy	, B	γQ	Db -	Qy	B 8	₽ ₽	Qy	B 4	9 5	\$ Q	Db	Qy	₽ <b>Q</b>	o db	γo	da Z	\$ B	Qy	ДĎ	δĀ		Qy	40	Oy	Db.	Qy	Db	, vo	90	Q E	} 5	_ }
400 GGTAAGAGCCGCCTTCGTCCAGCAGGTCCAGGGGGGGGGG	GlyAlaProGlyPro	436 GCAACGCGTCCAGGTAGTCGGCGA			1   1   1   1   1   1   1   1   1   1	00 ArgProSerGlyProThrGlyGlyHisProAlaAlaProGlyAlaProGlyProArgSer	559 536	380 ArgThrGluArgArgGlySerAlaGlnArgGlyHisProProGlyAlaGlyGln 399	50/ HIBPTOALBALAPTOGLYALBPTOGLYPTO	52	erGlyProThrGlyGly	688 CGTAGATGCCGCCATGCGCGCTCAGCGGCGCCGCACA	748 TGCGGAAGGTTTCCTCCAGCGCGGCCACGATGTGCTCGCCCTTCGTCGCGCATGTGGGTGG		808 TGGGCTGGCCCATGACCTTGTGGTGCGAGATCACCACCGGCACGTCCAGCTCGAGCTCGCGGCCGA 749	288 AlaProGlyAlaProGlyProArgSerProArgThrGluArgArgArgGlySerAla 306	275 GlyGlnArgProSerGlyProThrGlyGlyH1sProAla 287		264 SerAlaGlnArgGlyHisPro	982 CGCTCAGTTCGGGGAAGGGCTTGCACCAGGTGATGATGGTGCGTCCGGCCAGCAGCACGC 923	 249 GlyAlaProGlyProArgSerProArgThrGluArgArgArgCly 263	1042 CGGGCACCACGTCGTACTTGGATTTGCCGCGCTCGGCCGCGACTTCATCCAGGTCGCGCC 983	231 ProGlyAlaGlyGinArgProSerGlyProThrGlyGlyHigProAlaAlaPro 248		216ArgThrGluArgArgGlvSerAlaGlpArgGlvHjaproPro 230	1162 GATGCGGGCGCTCGTCGTGGGCAGGCCGTCGGAGCCGATCATGGTCGGGCCGAACGCCA 1103	199 ProThrGlyGlyHisProAlaAlaProGlyAlaProGlyProArgSerPro 215	1216	179	1255 CGGTCATCTTCCATA	150	1315 063364300000000000000000000000000000000

```
RATE RANGE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
Q8UZE1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
MEDLINE=20440633; PubMed=10970361;
Rao P., Jiang H., Wang F.;
"Cloning of the rhesus lymphocryptovirus viral capsid antigen
Epstein-Barr virus-encoded small RNA homologues and use in dia
of acute and persistent infections.";
                                                                                                                                                                                                         "Structural, functional, and nuclear antigen 3A, 3B, and 3 lymphocryptovirus.";
J. Virol. 74:5921-5932(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-99412410; PubMed-10482645;
Rivallier P., Quink C., Wang F.;
"Strong selective pressure for evolution of an Epstein-Barr virus LMP2B homologue in the rhesus lymphocryptovirus.";
J. Virol. 73:8867-8872(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAR-2002
01-MAR-2002
01-MAR-2002
                                                                                                                                         SEQUENCE FROM N.A. STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                      MEDLINE-20304984; PubMed-10846073;
Jiang H., Cho Y.G., Wang F.;
"Structural, functional, and genet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Franken M., Devergne O., Rosenzweig M., Annis B., Kieff E., Wang "Comparative analysis identifies conserved tumor necrosis factor receptor-associated factor 3 binding sites in the human and siming Epstein-Barr virus oncogene LMP1.",

J. Virol. 70:7819-7826(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-LCL8664;
MEDLINE-97048062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cercopithicine herpesvirus
Viruses; dsDNA viruses, no
Gammaherpesvirinae; Lymphoc
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QBUZE1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Franken M., Devergne O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  504 ThrGluArgArg--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGGG 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HisProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyHisProAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCCA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyAlaProGlyProArgSerProArgThrGluArgArgArgGlySerAlaGlnArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTGT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProProProGlyAlaGlyGlnArgProSerGlyProThrGlyGlyHisProAlaAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGAGTCGATGAAGCCGGGCGCGACCACCAGGCCCGACA-----CGTCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGCGAGATCTTGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTGGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGTGCGCCAGGGGGCGCATGCCGCAATTGCCCGTGACCACCGTGGTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (TrEMBLiel.) (TrEMBLiel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCGGCGCGTCCGACAGATCGCCGATGGCGGCGATGCGGTCGCCGCGCA 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=8892903;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        esvirus 15.
ses, no RNA stage;
Lymphocryptovirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20,
                                                                                                                                                                                                                                                      1 genetic compa
3C homologues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------ArgGlySerAlaGlnArgGlyHis
                                                                                                                                                                                                                                                                                   comparisons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Herpesviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                    ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GGTCGGCGCGCCC
                                                                                                                                                                                                                                                      Epstein-Barr virus 
Y the rhesus
                  in diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 simian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wang
                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490
```

```
멹
                                            Ş
                                                                밁
                                                                                 γQ
                                                                                                         밁
                                                                                                                            Ş
                                                                                                                                                  밁
                                                                                                                                                                    å
                                                                                                                                                                                          ₽
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                             US-10-009-782-1 (1-1758) x Q8UZE1 (1-890)
                                                                                                                                                                                                                                                        Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAINELLUCY, Jiang H., Cho
Rivailler P., Jiang H., Cho
Submitted (JUN-2001) to the
EMBL; AY037858; AAK95470.1;
     1495
                                             1549
                                                                                     1594
                                                                                                                             1642
                                                                                                                                                                      1702
                                                                                                                                                                                                               1750
                                                                                                                                                                                                                                                                                                                                                                                                           Rao P.V.,
Submitted
                        123
                                                                104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN-LCL8664; Jiang H., Wang F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
STRAIN=LCL8664;
STRAIN=LCL8664;
Quink
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-21602573; PubMed-11739708; Rivailler P., Jiang H., Cho Y.-G., Qu "Complete Nucleotide Sequence of the Validation for an Epstein-Barr Virus J. Virol. 76:421-426(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Moghaddam A., Annis
Submitted (MAR-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-LCL8664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Moghaddam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM
                                                                                                         87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                71
                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                                                                                                                          EQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clin.
                                                          GlnArgProGlyH1sProProProGluArgGlySerGlyPro---ArgGlyThrArgPro
                                                                                                                                           ThrArgGlnArg---ProGlyH1sProProGluArgGlySerGlyPro----
                                                                                                                                                               CCGCGATGCCGCTGCCTGCGACAGGTCTTGCAGGGTCATTTTCCGGGCCTTGCGCTCGG
                    ProAlaProSerSerArgThrGlyGlnArgThrArgGln-----
                                                                                                  ---ArgGlyThrArgPro-----ProAlaProSerSerArgThrGlyGlnArgThrArg
                                                                                                                        CGCGCAGGCGCGCCCATCACTTCCTTGCCCACGATATCGGGTGGGG-----
                                                                                                                                                                                                        CGTAGCTCAGGGCGATCTGGCCCAGCTCGGCCT-----
                                                                                                                                                                                   ArgGlySerGlyProArgGlyThrArgProProAlaProSerSerArgThrGlyGlnArg
                                       GGGTTGGGAGGGGGGGCACGCCGCCCCCTTCACGCCGGATTGTAAGGGCTGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                          Jiang H., (JAN-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Microbiol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wang F.;
(JUN-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A., Koch J., &
(MAR-1997) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (MAY-1999.)
                                                                                                                                                                                                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N.A.
                                                                                                                                                                                                                                                   1.75e-08
318.00
34.73%
29.94%
9.81%
                                                                               -CCGTATTGCGAGCGGAGGGGAGGGCCATGTAGCGGTTTGCGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                          Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ი
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ر
ه:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38:3219-3225(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                             б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ៥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Annis B., Wang F.;
o the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                        the
Cho
                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wang
the 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                     WW.
                                                                                                                                                                                                                                                                                                                                               EMBL/GenBank/DDBJ
-GCCGGGCTCAGGCGGCCGTGCGTGCGAGCACGCGGC
                                                                                                                                                                                                                                                                                                                                                                  Y.-G.,
                                                                                                                                                                                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>'</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ŧ
                                                                                                                                                                                                                                                                                                                                   149077C89D3B5574 CRC64;
                                                                                                                                                                                                                                                             Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                  Quink
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quink C., Wang F.;
he Rhesus Lymphocryptovirus:
us Animal Model.";
                                                                                                                                                                                                                                                                                                                                                                  с
;
                                                                                                                                                                                                                                                                                                                                                                 Wang
                                                                                                                                                                                                                                                                                                                                                        databases
                                                                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                           databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 databases
                                                                                                                                                                                                                                                   200
200
32
217
217
220
                   ArgProGlyHisPro
                                                                                                                                                                                                        -TGGACAGGGTCGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genetic
 1460
                                                                               1550
                                                                                                                                                                1643
                   140
                                       1496
                                                           122
                                                                                                    103
                                                                                                                       1595
                                                                                                                                            8
                                                                                                                                                                                    70
```

	:::       :::	542 GCGATTTCCT	
	CCGATGGCGCCGCTGGCCATGGCTTCCTCGGCCAGGTCCCGCATGGCC 543        :::             nArgThrArgGlnArgProGlyH1sProProProGluArgGlySerGlyProArgGlyTh 430	590 CCGATGCGCCGCTGC        ::: 410 nArgThrArgGlnArg	
<del></del>	TCTCTTCGGTGGTGGCGGCGGGCGGGCGGCGGTAGAAGGCGCCGGTCGAAATG 591		
	CGCGCATGTGGGTGGCGTAGATGCCGCCATGCGGCTCAGCGGCACACCTCGATGA 644 	703 CGCGCATGTGGGTGGC      371 ProAlaProSerSerA	
	GGCCGATGCGGAAGGTTTCCTCCAGCGCGGCCACGATGTGCTCGCCTTCGT 704	754 GGCCGATGCGGAAGGTTTCCTCCAGCGCGG-                       352 GlnArgPrOGlyH1sProProProGluArgG	٠.
<del></del>	TGACCTTGTGGTGCGAGATCACCACCGGCA	796 TGACCTTGTGGTGCGA	
	CCATGGCGGCCTCGATCAGCGCAGCGTCTCGCGCGAGCGGCCGAAATTGGGCTGGCCCA 797		
_	GCTTGAGCATGGTGGAGCCGGCCACGTAGGGATACGCGTCCAGCGAGACGTCCTGGCGCG 857 :::         ::	916 GCTTGAGCATGGTGGJ	
	GTTCGGGGAAGGGCTTGCACCAĠGTĠATGATGGTGCGTCCGGCCAGCAGCAGGAGGTCCT 917 	976 GTTCGGGGAAGGGCTT     301 SerGlyProArgGly-	
<del></del>	CCACGTCGTACTTGGATTTGCCGCCGCTCGGCCGCCGCACTTCATCCAGGTCGCGCCCGCTCA 977 :::	1036 CCACGTCGTACTTGGA :::       285 GlyGlnArgThr	
	GCACGTCGGGTTCGTCCATGAAGTAGATGGCGCCCGGCCGG	1093 GCACGTCGGGTTCGTCCA          272 ProArgGlyThrArgPro	
	GCGGCAGGCCGTCGGAGCCGATCATGGTCGGGCCGAACGCCAGGATGCGCT 1094    :::   :::   ThrGlyGlnArgThrArgGlnArgProGlyH1sProProFroGluArgGlySerGly 271		
	-CATAGTGCCCCAGCAGCACCGGGAAAGGTGCCCCACAGGCGCGGATGCGGGGCGCTCGTCGT 1145	1204 CATAGTGCCCCAGCA	
	CGGTCAGGCCGGTCATCTTCCATACCGCCGTCTCCAGGCGGGAACAGGCCCAGGTCGCGCG 1205	1264 CGGTCAGGCCGGTCA         229 ArgProGlyHls	
	GGTCGGCGAAGTACCCGGCCTGCAGCTGCCCGCGCCGGCCAGGCCGAAGCGCGCGG 1265	1321 GGTCGGCGAAGTACC             209 GlyProArgGlyThr	•
· .	GTTCGAAGGTGGCGGTATCGGCCACCGTGGCCGGGTCGAACACCACCA 1322       	1369 GTTCGAAGGTGGCGG	• •
<del></del>	CGTTGACGTACACGGAATGGATGCCGGCGCGCGCGCTCGGTAGGGT 1370 :::	181 GlyThrArgProPro	•
<del></del>	CGGCATGCTGGCCGGTGAACGCCTGCTTGCCAGACCGGCGCC	1459 CGGCATGCTGGCCGG       161 GlyGlnArgThrArg	0 ~
	ProProGluArgGlySerGlyProArgGlyThrArgProProAlaProSerSerArgThr 160		O

S

Ş

B 8

밁

Ş

밁

B 8

유 성 유

유 양

밁

```
Percent Similarity:
Best Local Similarity:
Query Match:
US-10-009-782-1 (1-1758) x Q52747 (1-680)
                                                                                                                                                                  AC OCC DIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
Q52747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 말
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                   Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                STRAIN-186;
STRAIN-186;
STRAIN-186;
Huang C.M., Asmundson R.V., Yu P.L.;
"Nucleotide sequence of a cellulase gene complex from Ruminococcus flavefaciens strain 186 coding for multi-cellulase activities.";
Submitted (SEP-1990) to the EMBL/GenBank/DDBJ databases.
EMBL; X56082; CAA39559.1; -.
EMBL; X56082; CAA39559.1; -.
STOTIENCE 680 AA; 75503 MW; SA589F334846DD6F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                 Q52747 PRELIMINARY; PRT; 680 AA. Q52747; O1-NOV-1996 (TrEMBLrel. 01, Created) O1-NOV-1996 (TrEMBLrel. 01, Last sequence update) O1-DEC-2001 (TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                                       Ruminococcus flavefaciens.

Bacteria; Firmicutes; Bacillus/Clostridium group; Clostridia; Clostridiales; Lachnospiraceae; Ruminococcus.
                                                                                                                                                                                                                                                                                                                                                                          Endo-glucanase.
                                                                                                                                                                                                                                                                                                             NCBI_TaxID=1265;
                                                                                                                                                                                                                                                                             EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   576 oGluArgGlySerGlyProArg-------GlyThrArgProProAlaPr 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 558 aProSerSerArgThrGlyGlnArg-----ThrArgGlnArgProGlyHisProProPr 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               538 nArgProGlyH1sProProProGluArgGlySerGlyProArgGlyThrArgProProAl 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       590 oSerSerArgThrGlyGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 ---- CGGCGCGCCCCCGGGGTGTTGCTGCCGTCGATGAGGGTGCCGCCCCGCGAGCAGC 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169 -CCGACAGATCGCCGATGGCGGCGATGCGGTCGCCGCACGCCCAGGT----- 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             230 TCGATGAAGCCGGGCGCGACCACCAGGCCCGACACGTCGACCCGGGTGTGCGCGGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           515 uArg------GlySerGlyProArgGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         504 gThrArgGlnArgProGly-------HisProPro------ProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484 uArgGlySerGlyProArgGlyThrArgProProAlaProSerSerArgThrGlyGlnAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | | |||::::::||| ||| |||
465 a---ProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyHisProProProGl 484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  503 ATGACCGCGCGCGCGCGTTGAATGGCCCACCATACAGGCGGCGTTGACGGCCGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65 AGGTCGAAGGGCTGGGAATCGG 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ThrArgProProAlaProSerSerArgThrGlyGlnArgThrArgGl 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGATCTTGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTGGGTGTGCGAG 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oProProGluArgGly-----SerGlyPro-----ArgGlyThrArgProProAl 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rArgProProAlaProSerSerArgThrGlyGlnArgThrArgGlnArgProGlyH1sPr 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCGCCAGCGGCGCAGGCTGATGCCGCAATTGCCCGTGACCACCGTGGTGACGCCCTGC 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGCCCGCAACGCGTCCAGGTAGTCGGCGAAGCGCTCGA--------
                                   6.05e-08
307.00
33.24%
28.01%
9.31%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          597
                                   Gaps:
                                                Mismatches:
Indels:
                                                                                Matches:
Conservative:
                                 198
198
37
195
277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    444
```

	00 -AlaHisProArgSerValGlnArgGluProIleAspHisGly 303	Db 29	
	AGCCCAATTTCGGCCCCTCGCCGCGAGACGCTGCCGCTGATCGAGGCCGCCATG	Оу 803	
		Db 272	
		Qy 743	
		Db 25	
	ACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCT 74	Оу 695	
		Db 238	
	7 GCGGCATCTACGCCACCC 6	Qy 67	
		Db 218	
		Оу 65	
		Db 20	
	AGAGATCATCGAGG	Qy 59	
	0	Db 19	
	ω.	Оу 53	
	86 -ProHisAspAla 189	Db 186	
•		ОУ 476	
-	171 nLeuProLeuProArgAspArgGluGlnProGlyGlyH1sGln 185	Db 17	
<b>o</b> .	419 ACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCGCCGTCAACGCCGCCTGTATGGTGG 475	Qy 4:	
	151 oAlaproProProArgAspArgArgArgAspGlnSerArgProArgArgAlaLeuValGl 171	Db 1:	
_	41	0у з	
•	   uValProvalValArgGlyValPr	рь 1:	
ω	353 CCAACC 358	0у 3:	
-	<pre>111 aCysHisGlyProSerValHisArgAlaAspTrpHisGlnProArgArgAlaAlaLeuGl 131</pre>	Db 1:	
2		Ωу. з:	
_	91 yHisAlaValValArgAspAspGlyLeuGlyProHisGlnArgAspCysValArgGlyAl 111	₽	
O1		Ωу 3	
	79 phlaarg	₽	
0	57	Qy 2	
	71	В	
o.	25	. 0y 1	
		В	
O)	ATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACG 19	0у. 1	
	37 SerProThrProSerSerProAlaSerProArgSerProThrValArgCysArg 54	Db	
on.	CACCCTCATCGACGGCAGCAACACCCCGGGGGGGGGG	Qy .	
	erProThrProProSerProSerThrGluSer 3	D D	
	32 CCATGICCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGCG 79	Qy	

	576 rGluArgAlaGluLeuArg 582	망	
	1733 AGATCGCCCTGAGCTACGA 1751	γQ	
576		gg gg	
1732	CATCGCGGTCTCGACCCTGTCCAAGGCCGAGCTGGGCC	<b>V</b> Q	
558		Дb	
1672	GCGCAAGGCCCGGAAAATGACCCTGC	ν	
538		Db	
1624	CATGGCCCCTCCCTCCGCTCGCAATACGGCCCCACCCCGATATCGTGGGCAAGGAAGTGA	Qy	
518		Дb	
1564	-	Qy	
498	487 gAspArgProGlnLeuArgValLeuValHis	Db	
1507	TTAC	νo	
487	468 pargalaargaspLeuargargargHisValaspalaThralaGlyGlnGlyArgAr	뫄	
1453	GCCGGTCTGGCAAGAGCAGGCGTTCACCGGCCAGC	γQ	
468	452ArgGlyHisProHisArgCysArgAlaValArgGlySerArgGlnAspAs	DB DB	
1409		γQ	
451		Db.	
1375	TA	Qy	
436	416 yArgLeuArgValSerAlaLeuArgValValProLeuArgArgArgSerGlyArgAspAr	ф	
1328	1283 CCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGT	Qy	
416	410 ProArgGlyGlyValGl	<b>D</b> b	
1282	1223 TCCCGCTGGAGACGCGGTATGGAAGATGACCGGCCTGACCGCCGCGCGCG	Qy	
409	400 aGlyAlaSerGlyGlnArgArgValGly	Дb	
1222	1163 CGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGT	Qy	
400	380 gProProGluGlyArgAspLeuGlnArgArgAlaValProGlySerArgAlaProGlnAl	. Db	
1162	1113GCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATC	Qy	
380	360 oSerGlyLeuGlnArgArgGlnAlaSerAlaValGluGlnArgHisProGlyArgArgAr		
1112	1073 TGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGG	. Qy	
360	340 gLeuH1sArgAlaGluGlyArgArgGluAlaSerLeuGlyLeuArgAlaArgGlyValPr	Db Db	
1072	1043 AGCTGCAGCCGGCCGGCGCCATCTACTTCA	γQ	
340		, Db	
1042	AAGTA	ργ	
327	323 pGlyAlaGlyArg	B	
982	923 GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG	Qy	
323	304	Db	
3	863 AGGACGTCTCGCTGGACGCGTATCCCCTACGTCGCCCGCTTCCACCATCATCATCATCATCACCACCA	Q <sub>V</sub>	

RESULT 14

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-009-782-1 (1-1758) x Q95JD1 (1-566)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last seq
01-JUN-2002 (TrEMBLrel. 21, Last ann
                                                                                                                                                                                                                                                                                                                                                                   153 uGlnGlnGlyProAlaProSerH1sValGlyPro------LysLysLysProPr 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129 GlyProProProGlyPro-AlaProProGlyAlaArgProProProGly------ 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sus scrofa (Pig).
Bukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
237 oProProProProProProGlyProProProBlyProAlaProProGlyAlaAr
                                                                                                                                                      205
                                                                                                                                                                                                                    189 yPro-----ArgProProProGlyProProSerProProAlaAsnAspSerGl
                                                                                                                                                                                                                                                        398 ACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCA 457
                                                                                                                                                                                                                                                                                            169 oProProGlyAlaGlyH1sProProArgProProProProAlaAsnGluSerGlnProGl 189
                                                                                                                                                                                                                                                                                                               338 CGCCGCTGGCGCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTT 397
                                                                                                                                                                                                                                                                                                                                                                                                       278 CGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGG 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218 CCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    109 ProProProGlyProAlaProProGlyAlaArgProProProGlyProProProPro 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CBI_TaxID-9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               asic proline-rich protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38 CCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCGACGGCA 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98 GCAACACCCGGGGGGGGGGGGGACCTGGGGGGTGCGGGGGACCGCATCGCCGCCATCG 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EQUENCE FROM N.A.
                                  GCCGAGGAAGCCATGGCCAGCGCGCCATCGGCATTTCGACCGGCG----CCTTCTACCCG
                                                                    GTCATGCCGGACTTGCAGCGCCGCCCACCGACGAAAATCGCGGCCATGCGGGACCTG
                                                                                                                                                    nGlu--
                                                                                                                                                                                     ACGCCGCCTGTATGGTGGGCCATTCAACGCTGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProProProGlyProAlaProProGlyAlaArgProProProGlyProProProProGly 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                             --GlySerProProSerAlaAspGlyProGlnGlnGlyProAlaProSe 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.64e-08
306.00
30.95%
28.74%
9.28%
                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ProProProProAlaGlyGlyLe 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        566
                                                                                                                                                                                   ----- GCGCCGCG 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  566
169
13
258
150
 257
                                      615
                                                                      237
                                                                                                          558
                                                                                                                                                                                                                     205
```

	Oy 1408	Db. 119		Qy 1525	Oy 1579 Db 92	Db 81	16	Оу 1699 .Db 65	Qy 1750 Db 45	US-10-009-782-1		Best Loca	Score:	Alignment	SQ SEQU		RA Lat:			RA Dal		RP SEQ					AC 04197	197	,,	Оу 1728	Db 526	
Total Common value of the second seco	TATCCC	CGCGGCCGGCATGCTGGCCGGTGAACGCCTGCTCTTGCCAGACCGGCGCGCGCGCTTGA 1409.	  CysproAla		AGGGAGGGCCATGTAGCGGTTTGCGTCCAGGGTTGGGAGGGGGCGGCACGCCG 1526	ArgalaAlaArgbroGlyValArgValProArg91	TO CONTRACT A CASE THAT THE TANK THE TOTAL CONTRACT CONTR	CGATGCCGCTGGCCTGCGACAGGTCTTGCAGGGTCATTTTCCGGGCCTTGCGCTCGGCGC 1		-782-1 (1-1758) x 041972 (1-706)	12 Gaps:	Percent Similarity: 33.43% Conservative: 20 Best Local Similarity: 30.58% Mismatches: 237	1.54e-07 Length: 299.00 Matches:	Scores:	PENCE 706 AA; 66413 MW; 9AD7A4AFDEB8748B CRC64.	Submitted (APR-1997) to the EMBL/GenBank/DDBJ databases. EMBL; U97553; AAB66421.1; -	Vaters	[2] SEQUENCE FROM N.A.	71 - 5894 - 5	treille P., Wamsley P., Hallswor eck S.H.; And renomic analysis of	PubMed=	SEQUENCE FROM N.A.		virus 4. NA viruses, no RNA stage:	l 66.4 kDa protein.	05, Created) 05, Last sequence up	PRELIMINARY;		lyAlaArgProp	B GGGCCAGATCGCCC 1741		
_			•																													
	VΩ	Ωу	, B	Qy	Фр	B	Ωy	D Qy	D Q	ф	Qy	. סט	Qy	Db	Qy	DB Db	Qγ	Db -2	0	da G	? 8	, Q	₽	γQ		Оу	ф	Qy	Db	Qy	<del></del>	
===	535 CCTCGTCGGTGGCGGCGC	595 AAATGCCGATGGCGCCGC            416 sProAlaArgGlyAl		655 ACACCTCGATGATCTCTT	715 GCTCGCCTTCGTCGCGCA        383 AlaArgProGly-ValAr	GlyTrp	766CGTCCAGCT	811 AATTGGGCTGGCCCATGA        348 GlyLeuProGlyPro	871 AGACGTCCTGGCGCGCC             338 ArgGlyAspGlyAlaPrc	318 AlaArgGlyAlaGlyPro	931 GCAGCACGCGGTCCTGC	307 ThrGlyProArgSer	985GCCCGCTCAGT	292	1009 CGGCCGCGACTTCATCC	286	1069 AGTAGATGGCGCCGGCC	268 TrpGlyGluProGlyGl	TGG	248 GlvLeuProGlvProGl		1159 GCGGGCGCTCGTCG		1216 CCAGGTCGCGCGCATAG	189 ValProArgProGlyGl	1252TCATC	   169 GlyGluProGlyGlyA	1288 GCCCGGCCAGGC	149 LeuProGlyProGlyCy	1348 CCACCGTGGCCGGGTC	133ArgAspGlvG	

Db 617 ProAlaArgGlyAlaGlyProProA.  Qy 7 GGA 5
Qy 61CGAAGGGCTGGGAATCGGATTGGGACATGGAAATCTCTCCTTCCGCGATCAAGT 8
Oy 112 GCCCCGGGGTGTTGCTGCCGTCGATGAGGGTGCCGCCGCGGAGCAGCAGGT 62
Qy 172 CGTCCGACAGATCGCCGATGGCGGCGATGCGGTCGCCGCACGCCCAGGTCGGCGCGCCC 113
Qy 229 CGATGAAGCCGGGCGCGACCACCAGGCCCGACACGTCGACCCGGGTGTGCGCGGGGG 173 :::            Db 557 ProGlyLeuGlySerArgSerProProAlaGlyTrpGlyGluProGlyGlyArgGlyPro 576
Qy       241
Oy 292 GCGAGATCTTGGGCGTCATGTCGCGACGCCTGAGCAGGTAGTTGTCGTCGTCGTC. 242 :::    bb 525AlaTrpGlyAlaGlyProProArgArgAspGlyGly 536
Qy 340 GCGCCAGGCTGATGCCGCAATTGCCCGTGACCACCGTGGTGACGCCCT 293 :::
Qy 382 CCAGCAGGTCCA
Qy 436 GCAACGCGTCCAGGTAGTCGGCGAAGCGCTCGAAACGGTAAGAGCCGCCTTCGT
Qy 475 CCACCATACAGGCGGCGTTGACGGCCGCCGGCGTGGCCC
Db 435GlyGlyAsnArgGlyAspGlyAlaProGluArgGlySerGlyLeuProGly 451

Search completed: May 11, 2003, 12:15:53
Job time : 113 secs

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                       Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic -
                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length:
                                                                                                                                                                                                                                                                                                                                                                        Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May 11, 2003, 01:33:19; Search time 82 Seconds
(without alignments)
6574.851 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        441362 seqs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-009-782-1
1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
/cgn2_6/ptodata/1/ina/5B_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/6B_COMB.seq:*
/cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
/cgn2_6/ptodata/1/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                        Length
                                               4257
11604
15079
13842
36778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000000000
                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               882724
                                                                                                                                                                                                                                                                                                                                                                     Description
                                                       Sequence
                                         Sequence
                                                                                  Sequence
                                                                                             Sequence
                                                                                                          Sequence
                                                                                                                         Sequence
                                                                                                                                                    Sequence
                                                                                                                                                                sequence
                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                    sequence
                                                   10, Appl
1, Appl
1, Appl
1, Appl
9, Appl
11, Appl
11, Appl
11, Appl
11, Appl
11, Appl
11, Appl
11, Appl
11, Appl
11, Appl
                                                                                                                                                                                                                                          Appli
Appli
Appli
Appli
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-945-283-1/c
                                                              FEATURE:
LOCATION:
                                                     NAME/KEY:
```

																O		
5	44	43	42	41	40	39	<u>د</u>	37	36		4		2 6	) (L	30	29	28	
67.2	67.2	67.2	67.4	67.4	67.8	68	68	68.2	68.2	68.6	68.6		68.8	58.8	69.6	70	71.2	
3.8	3.8		ω	ω	ω •	ω •	ω.	ω φ	3.9	ω •	w			3.9	4.0		4.1	
1208	1208	1208	30001	30001	1014	12588	2064	4496	2220	44377	44377	5392	5392	5392	11220	4403765	2634	
4	w	ນ	N	μ.	4	ພ	_	۵	4	N	N	4	ω	N	4	٠.	ω	
US-09-231-818-4	US-08-510-646B-4	US-08-403-852D-4	US-08-474-933-1	US-08-125-468-1	US-09-105-537-13	US-08-387-942C-1	US-08-343-428-1	US-08-765-907A-6	US-08-765-907A-14	US-08-804-198-1	US-08-804-227C-7	US-09-231-818-1	US-08-510-646B-1	US-08-403-852D-1	US-09-105-537-32	US-09-103-840A-2	US-08-941-936-1	
Sequence 4, Appli	Sequence 4, Appli	Sequence 4, Appli	Sequence 1, Appli	Sequence 1, Appli	<u></u>		Sequence 1, Appli	Sequence 6, Appli	14	_	Sequence 7, Appli	Sequence 1, Appli	Sequence 1, Appli	1, A	,	Sequence 2, Appl1	Sequence 1, Appli	•

## ALIGNMENTS

```
NAME: Ribando, Curtis p
REGISTRATION NUMBER: 27976
FELECOMUNICATION: TELEPHONE: 309-685-4011 ext.513
TELEPHONE: 309-685-4128
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 8438 base pairs
TYPE: NUCLEIC ACID
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                     LOCATION: FEATURE: NAME/KEY:
                                                                                                                                                                             MOLECULE TYPE: DNA (genomic)
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/945,283
FEATURE:
                                                                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 19920911
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Ribando, Curtis P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Cheung, Andrew K.
APPLICANT: Wesley, Ronald D.
TITLE OF INVENTION: Pseudoral
TITLE OF INVENTION: Involvin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Peoria
STATE: IL
COUNTRY: USA
ZIP: 61604
                                                                                                                                       ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/07945283 5352596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: Curtis P. Ribando
1815 No. 5352596th University Street
                                                                           CDS
622..6495
              replace(1099, "g")
                                       variation
                                                                                                                                     Pseudorables virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pseudorabies Virus Deletion Mutants Involving The EPO and LLT Genes
```

```
LOCATION:
FEATURE:
NAME/KEY:
LOCATION:
US-07-945-283-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 5.4%;
Best Local Similarity 44.5%;
     4827 TACCCGGGCCGCGCGGACCCCCGCGCGCGGGAGGCGACCGTCGAGGCCCTCTGCGCC
                                                                                                                                                                                                                                                               5067 CCCGACCAGCGCTTCAACCAGTTCTGCCAGCGCCGGGTCCACGCCCCCACGGCCACGGC
                                                                                                                                                                                                                                                                                                                             5127 ATCTACAGCGGGGCCGGCGAGGCCATGTCCTGGCTGCAGAACCCGCGGATGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                             5187 CCCGTCTTCATCCCGGAGATGGGGGACTCGAGGAAGCAGCACGAGGCCCTCGTGCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5484
                                                                                                                                                                                                                                                                                                                                                           511 TTGCAGCGCCGCCACCGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCGAGGAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5544 CGCGCCGGGCCACCGTCTCCGCCGGCGCGCCGCGGGCCCGGGCCCTCGGCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION:
FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  331 AGCCTGGCGCCGCGCACGCCACCCGCCCGCCTGGACCTGGACGACGAAGGC 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271 GACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION:
                                   AATTTCGGCCGCTCGCGCGAGACGCTGCCGCCGATCGAGGCCGCCATGGCGCGCCAGGAC
                                                                                                 G---GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCC
                                                                                                                                 CAGGACCCGCTCTGGGCCCTGCCGCACGCGGTGAGCGCCGTGGCCATGAGCCGCCGCTAC
                                                                                                                                                               ACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                             ACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
                                                                 GATCGCACCAGAAGACCTTCATCCTGCAGAGCCTCCGCCGGGCCTACGCCGACATGGCC
                                                                                                                                                                                               TCCTTCATCACCGGCAGCGTGACCCCGCCGCTGCCGCACATCGGGGACGCCATGGCCGCC
                                                                                                                                                                                                                                                                                             ATGGCCAGCGGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCCCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCG 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGCCCCCGCCGACCGACGGGCCGCTGCTCACCCCGCTCGGGGAGCCCTGGCCCGGCTCC 5308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCCGGCCCCGCAGGAAGCGCCGCTCCACCAACAACCACCTCTCGCTCATGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCGCCTCCGCCACCTCCTCCTCCGCCGCGCGCCTCCCCGGCCCCGGCCCCGG----AGCCC 5428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACGGCAGCAACACCCCGGGGGGGGGGGGCGCGCGACCTGGGCGTGCGCGACCGCATCGCC 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    variation
replace(7010, "g")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   replace(1566, "c")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   replace(1381,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  replace(1267, "t")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 94.2; DI
Pred. No. 8.8e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "c")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; DB 1;
8.8e-10;
ches 738;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 8438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
      4768
                                                                    4828
                                      867
                                                                                                                                  4888
                                                                                                   807
                                                                                                                                                                                                 4948
                                                                                                                                                                                                                                 690
                                                                                                                                                                                                                                                               5008
                                                                                                                                                                                                                                                                                             630
                                                                                                                                                                                                                                                                                                                               5068
                                                                                                                                                                                                                                                                                                                                                               570
                                                                                                                                                                                                                                                                                                                                                                                              5128
                                                                                                                                                                                                                                                                                                                                                                                                                             510
                                                                                                                                                                                                                                                                                                                                                                                                                                                             5188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ç
                                                                                                                                                                                                                                                                                      APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
APPLICANT: Xue, Y.
APPLICANT: Xue, Y.
APPLICANT: APPLICANT: DAO, L.
FILE OF INVENTION: DNA encoding methymycin and FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/105,537A
CURRENT FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FastSEQ for Windows Version 3.0
TENCHUM: 19/4
             Ş
                                             В
                                                                         Ş
                                                                                                             밁
                                                                                                                                         δõ
                                                                                                                                                                                                                                       : LENGTH: 1248
; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-105-537-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-105-537-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                               Query Match 4.7%; Score 81.8; DB 4; Best Local Similarity 44.2%; Pred. No. 1.6e-07; Matches 439; Conservative 0; Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence 7, Application US/09105537A
Patent No. 6265202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4359
152 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275
                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1285 GGCCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTCGACCCGGCCACG 1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1105 GCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4587 GCGCTGCTCGCGCCCCGACGCGATCCCCGGGGCCGGCCCGGCCGAGCGGCAGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1045 CTGCAGCCGGCCGGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4707
                                                                             92
                                                                                                                            868 GTCTCGCTGGACGCGTATCCCTACG----TGGCCGGCTCCACCATGCTCAAGCAGGACCGC
                                                              CCACCTGCAACGCCACGGCCCGGGCTCCACCTCCTCGCGCACGCCGCCGCCTCACCGGCC
                                 GAGCCCGCGCCCGGCCTGCCCCGCTCTGGCCCGAGCAGCCCGGCCTCGTCGTCCCAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCTGTGGGGCACCTTCCCGGGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTGGACGGGGCCCGCGCG-----AGGCCGCCTGGACCTACGCCGCGGCCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGACTCTGTCGCCCTCGTCGCCCGCACCGTGGCGCCGC-----TGGTGCGCTACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCGCCCCGCGCCCCGGCCGCCCTCGGGCCCGCCTGCCTCGAGGAGGTGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGTCCGCGCCTTCGCCGCGCGCGCAGCCCGGCGTGCCCCGCGAGCTGGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTGCGTCCTGGCCGCGCGCGTCCTCGAGCGCCTGCTGCCCTGCCCGCTCCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGG
```

4300

1284

4420 1224 4475 1104

1164 4528 1044

4648 984 4708

4588

4360

Ð 문

451

and

Length 1248; Indels

12;

Gaps

2

274 91 5247

밁

5307

391

5367

5427

문 Ş 뭥 S

151

밁 Ş 밁 S

4887

808

닭

335 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG

394

334

4947

691

631

```
Sequence 3, Application US/09105537A
Patent NO. 6265202
GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Sherman, D.H.
APPLICANT: STACO, L.
APPLICANT: Zhao, L.
APPLICANT: Zhao, L.
FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/105,537A
CURRENT FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                            US-09-105-537-3/c
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                       1172 CGCGCCACCGCGACACGCCCCCGCCCCGCCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                     1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212
                                                                                                                                                                                                                                                                                                                                                                                             CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGCGCCCGGCTTCATCGACTCGCACACCACGACGACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                    GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                 ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                             GCGTGCTGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                          AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCGCTGCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCGAGCTGGACGTGCTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGGCCTCACCTCCCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGGCCGCTCGCGCAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGCCAGCGGCGATCGGCATTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCCA 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCCGGCGGCAGCCCGGCGGGGACCAACGCCAAGATGAGCGAGGCCGGCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGTCTTCAGCTTCCA----CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCAGCGCGCCACCGAGGAGAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT
                                                                                                                                                                                                                                                                        1204
                                                                                 and
                                                                                 pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1051
                                                                                                                                                                                                                                                                                                                                 1171
                                                                                                                                                                                                                                                                                                                                                                982
                                                                                                                                                                                                                                                                                                                                                                                               1111
                                                                                                                                                                                                                                                                                                                                                                                                                             922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
```

```
밁
                            Ş
                                                          片
                                                                                   Ş
                                                                                                                   밁
                                                                                                                                            Ş
                                                                                                                                                                                                                                   밁
                                                                                                                                                                          맑
                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; SEQ ID NO 3
; LENGTH: 13613
; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-105-537-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 439; Conserv
                                                                                                                                                                                                                                  12012
    11772
                                                                                                                                                                                                                                                                                                                                                  12132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11952
                                                                                                                                                                                                                                                                                           12072
                                                                                                                                                                                                                                                                                                                                                                                                           12192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12489 CCGCCGCGCTCACACCCCGCACCTCGGCCGTCGGCGCTCCACCTCTGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12609
                                                                                                                                                                                                                                                                                                                                                                              572
                                                                                                                                                                                                                                                                                                                                                                                                                                       512
                                                                                                                                                                                                                                                                                                                      632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       332 GCCTGGCGCCGCTGGCGACGCCAACCCGGCCGCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            272 ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCGGCGAACTGACCG
                                                                                                                                CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC 1201:
                                                                                                                                                                                                                                                                                                                                            TGGGCCTCACCTCCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                    TGGCCAGCGGCGCCATCGGCATTCGACCGGCGCGCTTCTACCCGCCGCCGCCGCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                     TGCCCGGCGGCAGCCGCCGGCGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCACCGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCACCCCGGTCTTCGCCGACATCGACCCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG
                         GCGTGCTGCCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG 982
                                                     CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG 1177:
                                                                               AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                             ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCTACTTCT
                                                                                                                                                                                                  GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
                                                                                                                                                                                                                               ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                          CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCAGCGCGCCGCCACCGACGAAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGGCCTGCGGCCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 81.8; DB 4;
Pred. No. 2.1e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 13613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
11713
                                                                                                              11833
                                                                                                                                           862
                                                                                                                                                                      11893
                                                                                                                                                                                                                               11953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 211
                                                                                                                                                                                                                                                                                                                   691
                                                                                                                                                                                                                                                                                                                                                                           631
                                                                                                                                                                                                                                                                                                                                                                                                      12133
                                                                                                                                                                                                                                                                                                                                                                                                                                   571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      271
                                                                                                                                                                                                                                                                                                                                               1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                              12193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
```

S

983

GGCGCGACCTGGATGAAGTCGCGGGCCGAGCGCG

```
GENERAL INFORMATION:

APPLICANT: Stanford University
APPLICANT: Khosla, Chaitan
TITLE OF INVENTION: NON-STEROIDAL ESTROGEN-RECEPTOR
TITLE OF INVENTION: NON-STEROIDAL ESTROGEN-RECEPTOR
TITLE OF INVENTION: ANTAGONISTS
FILE REFERENCE: 28600-20210.00
CURRENT APPLICATION NUMBER: US/09/773,816
CURRENT FILING DATE: 2001-06-08
PRIOR APPLICATION NUMBER: US 60/243,458
PRIOR APPLICATION NUMBER: US 60/243,458
PRIOR APPLICATION NUMBER: US 60/179,305
PRIOR FILING DATE: 2000-01-31
NUMBER OF SEQ ID NOS: 1
                                                                                                                                                                             Ş
              밁
                                      γQ
                                                                             밁
                                                                                                          Ş
                                                                                                                                               밁
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; NAME/KEY: misc_feature
; LOCATION: (1)...(23623)
; OTHER INFORMATION: n = .
US-09-773-816-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-773-816-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 667; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 1 LENGTH: 23673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application Patent No. 6340774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Human FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
              8262
                                                                                                                                                                                                              8442
                                                                                                                                                                                                                                                                             8502
                                                                                                                                                                                                                                                                                                                                                8562
                                                                                                                                                                                                                                                                                                                                                                                                                8622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8742
                                             544
                                                                                                                                                                             424
                                                                                                                                                                                                                                               364
                                                                                                                                                                                                                                                                                                              304
                                                                                                                                                                                                                                                                                                                                                                             247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127
                                                                                                                                                                                                                                                                                                                                                                                                                                                  187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
GCGCGTCTCGGCTTCGCCGGCCGGCGGGTCATCGCGCAGACCATCCGCGAGGAACTGCCG
                                 GCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGC
                                                                                                                                                                  CTGGACGCGTTGCGGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCA 483
                                                                                                                                                                                                                                   GCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTAC
                                                                    TACGGCGGCGTCGCGTCCTTCGCGACCCTGTGCGACGTCATCGTCGCCGAACCCGGC
                                                                                                                                     GCCCTCGGGCAACTGGACGAGGCCGGCGTGTTGACCATCTCGCTGGTCACCGACCCCACC
                                                                                              ACGCTGCGCGCCGCGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGAGGAAATCGCG
                                                                                                                                                                                                  GCCGCGCGCGCATGCAGGAAGGCGCCGTCGCGCTCATGCAGATGGCCCAAGACCAGCGCC
                                                                                                                                                                                                                                                                    ACCCTCGCCGCGAGACCGCGCTCGCCGAACACCTGCCGCTGCTGATCGTCAGCGCGTCC
                                                                                                                                                                                                                                                                                                                                       GCCGCGATGGACTTCGCGTTCCTCGGCCGCAGCCTGGGCGGCGCGGCGGCGAACTGATC
                                                                                                                                                                                                                                                                                                                                                                     GACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCG---TCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGTGCGGCGACCGCATCGCCGATCGGCGATCTGTCGGACGCCGCCGCGCGCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGCTCGACGAGGCCGTCGTCATCGTGACCGGCCGGATCCACGGCCAGCCGCTCGTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGTCGACGTGTGGGGCTGGTGGTCGCGCCTTCATCGACTCGCACACCCACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCTCCTCGACCCCGGCTCCGCCGAGCCGATCCGCAACGACGTGCGCACCTTCGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.4%; Score 77.4; DB 4; Length 23673; ilarity 42.4%; Pred. No. 1.5e-06; Conservative 0; Mismatches 891; Indels 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/09773816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A,T,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
   8203
                                                                                                   543
                                                                                                                                     8323
                                                                                                                                                                                                    8383
                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                      8443
                                    603
                                                                                                                                                                                                                                                                                                                                     8503
                                                                                                                                                                                                                                                                                                                                                                                                        8563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8683
                                                                                                                                                                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                                                                                                                                                                                                     246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4;
```

```
밁
                                                         밁
                                                                                   Ş
                                                                                                                  밁
                                                                                                                                             Š
                                                                                                                                                                          밁
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
   7188
                              1618
                                                                                                                  7308
                                                                                                                                               1498
                                                                                                                                                                          7368
                                                                                                                                                                                                       1438
                                                                                                                                                                                                                                                              1378
                                                                                                                                                                                                                                 7428
                                                                                                                                                                                                                                                                                          7488
                                                                                                                                                                                                                                                                                                                       1318
                                                                                                                                                                                                                                                                                                                                                   7548
                                                                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                                                                             7608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1141
                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1081 GAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTG 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      664
                   GAAGTGATGGGCG
GCCATGAAAGGCG
                                                  GACCGCTGGGCCCGCTTCCGCCGCTATGGCGCGGAACGCACCACCGACGCCGAGATCACC 7189
                                                                                                                                                                                                                                                                                   ATCAGCCCCGAGGGCTGCGGGCCATCCTGTGGCAGGACCCCGCCGCCGCCGGGCGTGCC
                                                                               AACCGCTACATGGCCCCTCCCCTCCGCTCGCAATACGGCCCCACCCGATATCGTGGGCAAG 1617
                                                                                                          GACGCGATCGCGGCCTCGCGGAGTTGTCCCCCCTCGACGGCCACCAGTTGGTCGCC
                                                                                                                                       GCCCGCGCGCTGAGGGTCACCGCCCGCGAACTCCTCGGCCTGGGCATCGTCGACGGCGTC
                                                                                                                                                                                                                                                      GAGCGCCGCCGGCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCAG
                                                                                                                                                                                                                                                                                                                                           GCGCTCGCGCTCGCCAACCGTGTCCTGATGTTCGAGAACGGCATCTACTCGGTC
                                                                                                                                                                  CTCCCGGAACCCGAAGGCGGCACCGGAGCCGACCCGCTGCGCGCCGCCGACGCCCTCCGC
                                                                                                                                                                                              GACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCCACCTTCGAACACCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                   ATGGCGGGCCTGCGCGTCGTCGTCACCGTCACCGGCGAGGGCGGCAGCGGCGGG
                                                                                                                                                                                                                                                                                                                                                               TATGCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGGCGCGGTCGCCGAGGAGCAGGGCCAGGCCGTCGCCCATCGCCGAGAACCTGCGCCTG 7609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCACGACGACCCCCCCATCCGCCCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCTCGCCGACAACTCGGTCTCCCGGTCGTCACGTTCGTCGACACCCCCGGCGCTTAC 7669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCAACTTCGGCATG-----CCGATCCCGTCGGGCTACCGCAAGGCCGCCCGGATCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCAAGTACGACGTGGTGCCGAGCTGCAGCCGGCGGCGCCATCTACTTCATGATGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCCGACCCGTCGCCGTCATCGGCCACCAGAAGGGCCAACGACGCGCAGGAGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGAGCGCGCATGGCGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCGGCGACCGCATCTCGGGCGACTGCCCCGCCATCGTCGCCCGGCCTGGCCCGCTTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCGACCGGCCCACGCTCGACTACATCGCGCTGCTGTGCGAGGACTTCGTCGAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTGCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGGGGAACGGGGCCCGACGCGGGGGCCTGGACGCGGGGGCATCGCCGTACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGAGTTCCAGACCGCCGAATACCTCCTCGAACACGGCCTGATCGACCTGATCGTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAA 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCGCTGGAGGAA---ACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCGCGCGCGCGACGAACTGGCCCGCCTGCTGCGGGCCGGCGCGAAGCGGCCCAAG
7176
                            1630
                                                                                                                                                                                                                                                       1437
                                                                                                                                                                                               1497
                                                                                                                                                                                                                                                                                                                1377
                                                                                                                                                                                                                                                                                                                                           7489
                                                                                                          7249
                                                                                                                                                                    7309
                                                                                                                                                                                                                            7369
                                                                                                                                                                                                                                                                                   7429
                                                                                                                                                                                                                                                                                                                                                                                                      7549
                                                                                                                                                                                                                                                                                                                                                                                                                                   1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8143
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 4.3%;
Best Local Similarity 44.7%;
Matches 334; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 21
LENGTH: 5970
TYPE: DNA
ORGANISM: Streptomyces venezuelae
-09-320-878-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-320-878-21/c
equence 21, Application US/09320878A
atent No. 6117659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ARLIER FILING DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RLIER APPLICATION NUMBER: CIP OF 09/141,908 RLIER FILING DATE: 1998-08-28
                                                                                                                                                                                        392 GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                  601 CCGCCGCGGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661 TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RRENT APPLICATION NUMBER: RRENT FILING DATE: 1999-0
                                                                                                                                                 421 AGGTCTTCAGCTTC---CACGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCGCCGTCG
                                                                                                                                                                                                                                      481 CCGCGCACGCCTCGGCTGCGCGGTCGACGGCCGGCCGGCAGCCTCGGCGACGCCG
                                                                                                                                                                                                                                                                               332 GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCG 391
                                                                                                                                                                                                                                                                                                                             541 GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            212 TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152 CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGCCGGCCTCACCGGCG 722
512 TGCAGCGCCGCCGACGACGAGGAAAICGCGGCCATGCGGGGACCTGGCCGAGGAAGCCA 571
                                                                                                     LICANT: ASHLEY, Gary
LICANT: BETLACH, Melanic
LICANT: BETLACH, Mary C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OF INVENTION: RECOMBINANT NARBONOLIDE POLYKETIDE SYNTHASE
                                                           TCACCGACGACGCCGCCGCCGGGATCCGCGCCCTCCACAACTTCGGCTTCGACC 305
                                                                                                                                                                                                                                                                                                                                                                       ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/087,080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/100,880 FILING DATE: 1998-09-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLICATION NUMBER: 60/119,139
LING DATE: 1999-02-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATION NUMBER: CIP OF 09/073,538 IG DATE: 1998-05-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DATE: 1997-04-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300622002:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Melanie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1999-05-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/09/320,878A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 76.2;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
2.2e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 5970;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                 365
                                                                                                                                                                                            451
                                                                                                                                                                                                                                        422
                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                  542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION: TELEPHONE: 317-276-2459
                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                   TOPOLOGY: 1:
                                                            EATURE:
                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304 TGCCCGGCGGCAGCCCCGCCGGCGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  752 GCCGCGAGCTGGACGTGCCGGTGGTGA 778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            632 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244 TGGGCCTCACCTCCCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG 185
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: Februa CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM COMPA
OPERATING SYSTEM: M
SOFTWARE: ASCI(DOS)
                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                              STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                         NAME: Plant, Thomas, G. REGISTRATION NUMBER: 35,784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: UZIP: 46285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
                                                                                                                         LOCATION:
                                                                                                                                       NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
NAME/KEY:
                             LOCATION:
                                             NAME/KEY:
                                                                           LOCATION:
                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCGCGACCTCGTCATGGAGGTCCTGA 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGCCTCAACCACCACCAGTACGTGATCGTCGAGGATCGACGAGGCCACCACCGGCATCC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGSCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC 125
                                                                                                                                                                                                                                                                nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INDIANAPOLIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/08804227C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: THOMAS G. PLANT 1501
LILLY CORPORATE CENTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rosteck, Paul R., C
Sutton, Kimberly L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kuhstoss,
SdS
                                                                        CDS
20010..31199
                                                                                                                       CDS '
14351..19945
                                                                                                                                                                      CDS
816..14234
                           CDS
31232..36067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IBM Compatible
                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                    February 21,
                                                                                                                                                                                                                                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         f, Bradley S.
                                                                                                                                                                                                                                                                                                                             76-2459
                                                                                                                                                                                                                   (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLYKETIDE SYNTHASE GENES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Stuart A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Text only
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/08/804,227C
                                                                                                                                                                                                                                                                                                              ::
                                                                                                                                                                                                                                                                                                                                                              X-8231
```

36249..41774

```
S
                                                        밁
                                                                                 S
                                                                                                                    밁
                                                                                                                                              S
                                                                                                                                                                                                        S
                                                                                                                                                                               밁
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-804-227C-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match

Best Local Similarity 42.5

Matches 722; Conservative
                                                                                                                                                                                                                                         29521
                                                        29701
                                                                                                                    29641
                                                                                                                                                                              29581
                                                                                                                                                                                                                                                                                                                                                             29404
                                                                                                                                                                                                                                                                                                                                                                                                                         29344
                                                                                                                                                                                                                                                                                                   29461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29164 TGGCCCCGATCCCCACGGCTGGTCGTACGCCGAGGCGGCCTCCGTGCCCGCCGTGCTCC 29223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28930
                                                                                                                                                                                                                                                                                                                                695
                                                                                                                                                                                                                                                                                                                                                                                           635
                                                                                    935
                                                                                                                                                875
                                                                                                                                                                                                          815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35
ATGAAGTCGCGGCCGAGCGGGGAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGG
                                                                         CCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGCGACCTGG
                                             CCGGAGCGCTGCCGCTGCCGCTCACCGCCTACGGCATACGCGACGCCCGCACC----
                                                                                                       TGCAGGCCGGTCCCGACACCGTCGGGGAGATGCTCGGGGGAACTGCTGGAACTGTTCGCGG
                                                                                                                                   TGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGG
                                                                                                                                                                                             GCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGC
                                                                                                                                                                                                                                                          GCGAGCTGGACGTGCTGGTGGTGATCTCGCACCACGAGGTCATGGGCCCAGCCCAATTTCG
                                                                                                                                                                                                                                                                                        GGACGGGCGGGCGGGTGTCGACATCGTGCTGAACTCCCTGGCCGGCGAGTTCGTCGACG
                                                                                                                                                                    GCGACCCCGGGGGATCGCCGCCCCCATCCGGGCACCGACTACCGGGCGTTCGACCTGG
                                                                                                                                                                                                                              CCTCACTGCGGCTGCCGCGCGCGCGGCACTTCCTGGAACTCGGCAAGGCCGACGTCC
                                                                                                                                                                                                                                                                                                                     ACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCC
                                                                                                                                                                                                                                                                                                                                                                                CCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGCGCCGCCACGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCGAGGAAGCCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACCTCCTACTACGCGCTGACCCGGCTGGCCCGGGCCCGCACCGGACAGACCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCGCCGCTGGCGACGCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCT
                                                                                                                                                                                                                                                                                                                                                    CCGACGACCGCATCGCCGACTCCCGCACCCTG---GACTTCGCCGAGCGCTTCCTGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                              TGGAGGTGTACGCCACCGCGAGCACCGGCAAATGGGACGCCCTGCAGAAGCACGGCATCC 29403
                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGTGCTCGGCATGTGGAACGGCGGCTTCGGGGCCCCTCGTGGTGGCCGACCACCGCATGG 29163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGGAGCCGGCGTCGTCGAGACCGCCCCGATGTCACCGGCCTCTCCGGCGGAGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGACGCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGGCGATCTGTCGGACGCCGCCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGCCCCGGCCGGGCCCGGAGGACCTCGTACCGCCCGGCACCACCGCCTGGC 28869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGACGCCCTGATCGCCTCGGCATGTACCCGGGCAA-----GGGAACCATGGGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACA 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGCAACACCCCGGGGCGGCGCGCCGACCTGGGCGTGCGCGGCGACCGCATCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 75.6;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 43280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                 1054
                                                                            994
                                                                                                                                     934
                                                                                                                                                                                                874
                                                                                                                                                                                                                                                            814
                                                                                                                                                                                                                                                                                                                        754
                                                                                                                                                                                                                                                                                                                                                                                   694
                                                                                                          29700
                                                                                                                                                                    29640
                                                                                                                                                                                                                                                                                          29520
                                                                                                                                                                                                                              29580
                                                                                                                                                                                                                                                                                                                                                    29460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ģ
```

```
RESULT 7
US-08-461-775-8
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮻
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                   Sequence 8, Application US/08461775 Patent No. 5858773 GENERAL INFORMATION:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                         30469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30231 --TACTCGTCCTCGCCGCGCTGCTCGGCAGCCCCGGCCAGGGCGCCTACGCCGCCGCCA 30288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30112
                                                                                                                                                                                                            APPLICANT: GUGLIEMI, Gerard
TITLE OF INVENTION: REGULATORY NUCLEOTIDE SEQUENCE OF
TITLE OF INVENTION: INITIATION OF TRANSCRIPTION
                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29757
                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                  1712 TGTCCAAGGCCGAGCTGGGC 1731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29872
                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1055
                                                                                                                     STREET: George Mason Bldg.,
CITY: Alexandria
STATE: Virginia
                                                                                      COUNTRY: United States ZIP: 22313-1404
                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGCCCGGAAAATGACCCTGCAAGACCTGTCGCAGGCCAGCGGCATCGCGGTCTCGACCC 1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGCCTTCCTGGACGGCTTCGCCCGATACCGCAAGGGCCTCGGGCTGCCGGCGCTCTCGC 30348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCAACGGCGCCTGAACCGGAGCGGCATCATGGCGCTCACCGACGCCCAGGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGCCTGGGGACTGTGGGGCAGCAACAGCCGCATGGCGGGCCACCTCGACCAGTCGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTTCGACGCCGCACAGGAC 30488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGCCGTGCTCAACCTGCACGAGCTGACCCGGGGCGACCTCTCGGCGTTCGTCCTC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGGCACCATCCCCTCACTGACCGGCGAGAACATCGACAACGTGCTGCGGCCCAAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGGTATGGAAGATGACCGGCCTGACCGCGCGCGCTTCGGCCTGGCCG----GGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCACCTICCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGA 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGACACTCGCCGCCATCTGGTCAACCGCCACGGCGTACGGCACCTGCTGCTCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCGCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGGTGTTTCGACCCGCCCACGGTGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGAGGTCCGGGTCGCGGCCTGCGACGCGGCCGACCGGCAGCGGCTCACCGAACTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACCGGCGCGGCGAGGGGCGTCGCGGAACTGATTGGTGAACTGGGCGAGTTGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACCATGATCGGCTCCGACGGCCTGCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCCGGATTCGACACCCCACCGCACGGTGCTCCTCACCGGCGGCACGGGCACGCTCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGAATCCCCGTCGAGCACCCGCTCGGCGCCGTCGTCCACGCCGCGGGCACCCTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----GCCTTGCGCACCCTCAGCCAGGCCCGGCACACCGGCAAGCTCGTGCTGACGGTGC
                                                                                                                                                                                                                                                                 MAZODIER, Philippe
                                                                                                                                                                Burns, Doane, Swecker & Mathis
                                                                                                                                                  Washington & Prince
   Version
   #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29811
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; NAME/KEY:
; LOCATION:
US-08-461-775-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 4.3%;
Best Local Similarity 46.9%;
Matches 234; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (703) 836-202
NFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
   570
                                                            510 CGGTGTCATCACCGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG
                                                                                                           717
                                                                                                                                                                                                      330 CTCCCCGGCCGCCTGAAGAAGGGCATCGACGCCGCCGTCGCCGCCGTCTCCCGCCGAGCT 389
                                                                                                                                                                                                                                                                                                                                                                                                                                          210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                                                                                               450
                                                                                                                                                                                                                                                                                                               537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCGCATCGGCATTTC 596
                                                                                                                                                                                                                                                                                                                                                                  270
                                                                                                                                                                                                                                                                                                                                                                                                      477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 10-SEP-1990
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/050,:
FILING DATE: 10-MAY-1993
APPLICATION NUMBER: FR 9011186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
-APPLICATION NUMBER: US/08/461,775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1320 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                 GATCTCGCACCACAAGGTC 795
                                                                                              CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCCGGTGGT
                                                                                                                                CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                  CCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGCA 716
CATGGCCTTCGACAAGGGC 588
                                                                                                                                                                                                                                         GACCGGCGCCTTCTACCCGCCGCGCGCGCGCGCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                                                                   CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                       CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGG 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACGGCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCCGTACGAGAACCTCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGGACCATCACCAA 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Crane-Feury, Sharon E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1..1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          836-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36,113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08/050,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 75; DB 2;
Pred. No. 3.2e-06;
0; Mismatches 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 010830-035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                265; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                  776
                                                                                                                                  509
                                                                                                                                                                                                         449
                                                                                                                                                                                                                                           656
                                                              569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

RESULT 8 US-09-031-606-8

Sequence 8, Application US/09031606 Patent No. 6153404

```
; NAME/KEY:
; LOCATION:
US-09-031-606-8
                                                                                                                 20
                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 234; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (703) 836-20 NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 1320 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDION TYPE: Flopy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: DNA (genomic)
                                                                                                           537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC
                                                                                                                                                                                 477 CCATTCAACGCTGCGCGCGCGCGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAGGA 536
                                                                                                                                                                                                                      210 CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC 269
                                                                                                                                                                                                                                                         417 CGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGG 476
                                                                                                                                                                                                                                                                                              150 CGACGGCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCCGTACGAGAACCTCGGCGC 209
                                                                                                                                                                                                                                                                                                                                                                                                         297 CGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAA 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 10-SEP-1990
ATTORNEY/AGENT INFORMATION:
NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                  90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: UFILING DATE: 10-MAY-1
APPLICATION NUMBER: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
GCTCGACACCGCGCGCGCGATCGACGACAAGTCCGACATCGCCGCCGTCGCCGCGCTCTC
                                   GACCGGCGCCTTCTACCCGCCGCGCGCCCGCGCGCACCGAAGAGATCATCGAGGTGTG
                                                                      CTCCCCGGCCGCCTGAAGAAGGGCATCGACGCCGCCGTCGCCGCCGTCTCCCGCCGAGCT
                                                                                                                                                CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGCCGGCGC
                                                                                                                                                                                                                                                                                                                                 CCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                                                                                                                                                                                                                                                                                                                                      CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1320 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 George Mason Bldg., Washington & Prince Sts
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GUGLIEMI, Gerard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1..1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MAZODIER, Philippe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burns, Doane, Swecker & Mathis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            703). 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       836-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REGULATORY
INITIATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FR 9011186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US 08/050,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/09/031,606
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches 265; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 75; DB 3;
Pred. No. 3.2e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             010830-035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF TRANSCRIPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps .
 449
                                                                          389
                                                                                                             596
                                                                                                                                                  329
```

```
Ş
                                    밁
                                                          S
                                                                                                                                          US-08-461-775-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 9
US-08-461-775-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 말
                                                                                     Matches
                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No. 5
                                                                                                                                                                                                                                                                  TELEFAX: (703) 836-20
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                             FEATURE:
                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Rel
                                                           297
                                                                             Local C
                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
         357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                   90
                                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ITLE OF INVENTION: REGULATORY INITIATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               777 GATCTCGCACCACAAGGTC 795
                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                                                                   REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/050,313 FILING DATE: 10-MAY-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                             ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                        PPLICATION NUMBER:
CCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                   CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 149
                                                                                                                                                                                                                                                                                                                                                                             LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                            ASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGGCCTTCGACAAGGGC 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGT 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGTGTCATCACCGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGCCGCTGAGCGCGCATGGCGCATCTACGCCACATGCGCGACGAAGGCGAGCA
                                                                                                Similarity
                                                                                                                                                                                                                           i: 1620 base pairs nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0, Application US/08461775
5858773
                                                                                                                                                                                                                                                                                                                                                Crane-Feury, Sharon E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         George Mason Bldg.,
                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GUGLIEMI,
                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAZODIER, Philippe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burns,
                                                                                                                                                                                                                                                                                                (703)
                                                                                                                                                                                        DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                           10-SEP-1990
                                                                                                                                                                                                                  double
                                                                                                                                                                                                                                                                                836-2021
                                                                                             46.98;
                                                                                                                                                                                                                                                                                             836-6620
                                                                                                                                                                                                                                                                                                                                                                                       FR 9011186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gerard
                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/461,775
                                                                                                                                                                                                                                                                                                                                 36,113
                                                                               Score 75; DB:
Pred. No. 3.3e
0; M1smatches
                                                                                  0
                                                                                                                                                                                                                                                                                                                      010830-035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Swecker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE SEQUENCE OF OF TRANSCRIPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     & Mathis
                                                                                              DB 2;
. 3.3e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         & Prince
                                                                                 265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #1.25
                                                                                                        Length 1620
                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sts
                                                                              0
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                716
                                                                              0
```

```
멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-031-606-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence 10,
           INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tent No.
                                       REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
SEQUENCE CHARAC
                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: MAZODIEK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570 CATGGCCTTCGACAAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   777 GATCTCGCACCACAAGGTC 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          717 CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657 CCGGCCGCAGGCGCATGGCGGCATGCGCCACCATGCGCGACGAGGCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 390 GCTCGACACCGCGCGCGCGATCGACGACAAGTCCGACATCGCCGCCGCTCGCCGCGCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           330 CTCCCCGGCCGCCTGAAGAAGGGCATCGACGCCGCCGTCGCCGCCGTCTCCGCCGAGCT
                                                                                                                                 APPLICATION NUMBER: FR 9011186 FILING DATE: 10-SEP-1990
                                                                                                                                                               APPLICATION NUMBER: I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            477 CCATTCAACGCTGCGCGCGCGCGCACGAGGACTTGCAGCGCGCCGCCCACCGACGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150
                                                                                        REGISTRATION NUMBER:
                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                       OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                      COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                             DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGTGTCATCACCGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGACCGTGCTGGCCCAGGCGCTGGTGGTGCGCGAACGTCGCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGGCCGTCAACGCCGGCTGTATGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACGGCGTCACCATCGCCCGTGAGGTCGAGGTGCGACGACCCGTACGAGAACCTCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                                                                                                                                                                                                                                 RY: United States
22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6153404
                                                                                                                                                                                                                                                                                                                                                                                             Alexandria
                                                                                                    Crane-Feury, Sharon E
                                                                                                                                                                                                                                                                                                                                                                               Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/09031606
                                                                                                                                                                                                                                                                                                                                                                                                          George Mason Bldg.,
                             (703)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAZODIER, Philippe
                                                                                                                                                                                                                                                                                     IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                        Burns,
                          836-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGULATORY
INITIATION
                                                                                                                                                                                                                                                                                                                                                                                                                             Doane,
                                                                                                                                                                               US 08/050,313
                                                                                                                                                                                                                                          US/09/031,606
                                                                                     36,11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       588
                                                                      010830-035
                                                                                                                                                                                                                                                                                                                                                                                                          Swecker & Mathis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEOTIDE SEQUENCE OF THE OF TRANSCRIPTION
                                                                                                                                                                                                                                                                       #1.25
                                                                                                                                                                                                                                                                                                                                                                                                           Prince
                                                                                                                                                                                                                                                                                                                                                                                                          Sts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              476
```

```
RESULT 11
US-08-458-568A-11/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-031-606-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 234; Conserv
                                                                                                                                                                                                                                                                                                                                  quence 11, Application US/08458568A tent No. 5821339
                                                                                                                                                                                                                                                                                                             ENERAL INFORMATION
                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                         570 CATGGCCTTCGACAAGGGC 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           597 GACCGGCGCCTTCTACCCGCCCGCCGCCGCGCGCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                              PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               777 GATCTCGCACCACAAGGTC 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                717 CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGAGCTGGACGTGCCGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           330 CTCCCCGGCCGCCTGAAGAAGGGCATCGACGCCGCCGTCGCCGCCGTCTCCGCCGAGCT 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                297 CGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCGCTGGCGCACGCCAA 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE:
             MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                           COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: double TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                    RRESPONDENCE ADDRESS
                                                                                                                                                                                   DDRESSEE:
                                                                                                                                                                                                                       BER OF SEQUENCES:
                                                                                                                                                                                                                                    LE OF INVENTION: Composition of invention: Infections
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGTGTCATCACCGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCCGCTGAGCGCGATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCA 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGCCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGG 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGCCCGCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGGCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCCGTACGAGAACCTCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 149
                                                                                                                                               SSEE: Woodcock, Washburn, Kurtz, Mackiewicz & No.
T: One Liberty Place, 46th floor
Philadelphia
                                                                                                                               PA
                                                                                                              USA
                                                                                                                                                                                                                                                                                              Schaffer, Priscilla A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
WordPerfect 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1..1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA (genomic)
                                                                                                                                                                                                                                                                            Lily
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46.98;
                                                                                                                                                                                                                                                Compositions and Methods for Treatment of Herpesvirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 75; DB 3;
Pred. No. 3.3e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1620
                                                                                                                                                                             5821339r1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-458-568A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                   4645 CGCCGCGCCCAGGCCGGCCGCGTGGCCGTCGAGTGCCTGGCCGCCGCGCGGGATCCTG
                                                                                                                                                                                        4705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (215) 568-343 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                            4825 AGATGACGAGGGGGTCGCCGCCGTCGCCGCCGCCGCCACCGGGCGAGCGCGCGGGTGCCCGC 4766
                                                                                                                                                                                                                                                     4885 CCTGTTGGCGCGCGAGAACGCGGCGCTGACGGGGGCCCGGGGGAGCCCCGGGCGCCGGCGC 4826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5005 GGCGGCCGGCTTCGGCTGGGGCCTGGCGCACGCGGCCGCCGTGGCCATGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5065 CAGCAGCTCCTTCATCACCGGCAGCGTGGCGGGGCCGTGCCCCACCTGGGCTACGCCAT 5006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4945 CCGATACGACCGCGCGCAGAAGGGCTTCCTGCTGACCAGCCTGCGCCGCGCCCTACGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         664 CTGAGCGCGCATGGCGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGTG 723
                                                                                                                                                                                                                   429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGINAL SOURCE:
784 CACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATC 843
                                                                                                                                                                                                                                                                                         549 GCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCC----ATCGGCATTTCGACCGGC 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369 CCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGA 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           189 GGTCGACGTGTCGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCGCACACCCCACGACGA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      249 CAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGT 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION DATA:
PRIOR APPLICATION DATA:
US 08/065,146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
nes 581; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Herpes simplex virus Type 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE: (215) 568-3100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH:
                                                                     GCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAAATCGCGGCCAT 548
                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCT 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Leary Ph.D., Kathryn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-MAY-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-JUNE-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 568-3439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/08/458,568A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 74.4; DB 1;
Pred. No. 5.2e-06;
0; Mismatches 766;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DFCI-0029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 12001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17;
```

4586

663

4886

4946

Gaps

```
Sequence 1, Application US/09105537A
Patent No. 6265202
GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
APPLICANT: Liu, H.
APPLICANT: Xue, Y.
APPLICANT: AND, L.
TITLE OF INVENTION: DNA encoding methymycin and
FILE REFERENCE: 600,438US1
                                                                                                                                                                                                                                                                RESULT 12
US-09-105-537-1
                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
; TYPE: DNA
; ORGANISM: Streptomyces
US-09-105-537-1
                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                       SEQ ID NO 1
                                                                CURRENT APPLICATION NUMBER: US/09/105,537A
CURRENT FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FastSEQ for Windows Version 3.0
                                           LENGTH: 15872
                                                                                                                                                                                                                                                                                                                              3811
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      904
                                                                                                                                                                                                                                                                                                                      TACTGCTCCCCGCGCGCCGTGGCCGAGCTCACGGACCACCCGCT 3768
                                                                                                                                                                                                                                                                                                                                          CAGCCCTTACAATCCGGCGTGAACGGGGCGGCGTGCCGCCCCT 1541
                                                                                                                                                                                                                                                                                                                                                                               CCGCGCCCCGTGGCCGTGTCGCCGCCGGCCCGAGGGCCCCGACCCCCTGGGCGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGTGTTCGACCCGGCCACGGTGGCCGATAC----CGCCACCTTCGAACACCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGCGTTCGGCCTGGCCGGGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCTG 1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGCCGAGCCCGCCCCGCGCGCGCGCGCGCCCCGGGCCGCGCGCGCAGGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCGCGACCTGGGCCTGTTCCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCCGCCGCCGCCGCCGCGCGGGGGGGGGGCGCAAGAGTCCCGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCTGGGGCACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGTGGCGCGTGCGCGTGAGCCTGGTCGCCGGGGCCCTGGGCCCCGCGCTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGAGCCTGCGCCCCCTGCTGGCGGCGGCGGCGAGCGCACCGGACGCCGACGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGCCCTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGGACCCGCGCCTGCCGAGCTCCGCGGGCCGCCGCGGGGACCTGCTGTTTGACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGTACGACGTGGTGCCGAGCTGCAGCCGGCCGGCGCATCTACTTCATGATGGACGAA 1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGGCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGTGCTCATG-----CGCCTGCGCGGGGACCTGCGCGTGGCCGGCGGCGGGGGGCGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCATGCTCAAGCAGGACCGCGTGCTGCTGCCGGGCCGCACCATCATCACCTGGTGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     venezuelae
                                                                                                                                            and
                                                                                                                                         pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                            1497
                                                                                                                                                                                                                                                                                                                                                                                                                                          3872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              963
```

```
밁
                                                               Ş
                                                                                                 밁
                                                                                                                            Ş
                                                                                                                                                            밁
                                                                                                                                                                                        Š
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 586; Conserv
    1195
                                   5750
                                                                                              5690
                                                                                                                             1075
                                                                                                                                                           5630
                                                                                                                                                                                          1015
                                                                                                                                                                                                                         5570
                                                                                                                                                                                                                                                                                     5510
                                                                                                                                                                                                                                                                                                                                                 5452
                                                                                                                                                                                                                                                                                                                                                                                                               5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4919
                                                                                                                                                                                                                                                        955
                                                                                                                                                                                                                                                                                                                    895
                                                                                                                                                                                                                                                                                                                                                                                835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                175 GCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             355 AACCCGCCCCCCCCCGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              235
    GGGCAC - - -
                                                          GGCCTGCCGCACGACGAGCGCCCGCATCCGCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTG
                                                                                        GGTCTCGCGACCGCCCATGTCCACGGCGCACCCTTGGACCGGGCGTCGTTCTTCCCGGAC
                                                                                                                     ATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGAC
                                                                                                                                                    GACGTCACGGTCGTCCCGCTGCTGCGCGCGGGGGGGCGCCCGAGCCCGAGACCCTCGCCGCC
                                                                                                                                                                           GTCCTCACGGCACTCGCGAGGAGGCTCTCGCGCCCGGCACGGACGCCCCGGACGCCCGG
                                                                                                                                                                                                                                                                                                            GCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACC
                                                                                                                                                                                                                                                                                                                                         --GCTCACCTCGCCCGCGTACTGGGTCGACCAGATCCGGCGGCCCGTGCGCTTCCTGGAC 5509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTG
                                                                                                                                                                                                                                                                              GCCGTCCGCACCCTGGCCGACGCCAGGACGCGACCGTCCTCGTCGAGATCGGCCCCGACGCC
                                                                                                                                                                                                                                                                                                                                                                          CCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTG
                                                                                                                                                                                                                                                                                                                                                                                                         CCGCGGATCCCCGTCGTCTCCACGGTCACCGGCGCGCTCGTCACGTCCGGCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGATCTCGCACCACGAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACATGGACGACGTCCTCGACGAGTTCCTCCGGGTCGCCGAGGGCCTGACCTTCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGACCCACCGCGTGGTCGTCTCCGGCGACGCGGACGCCGCGAGGAGATCCGCGCCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACCGACGAG
                             GGGCGCCGCACGGACCTACGTACGCCTTCCGGCGCGAGCACTACTGGCTGACGCCC
                                                                                                                                                                                                                                               TGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGGGGGACCTGGATGAAGTCGCGGCCGAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGGCGGGACGCGCGCGCACCCGCAGGCTGCGCGTCAGCCACGCCTTCCACTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGACCGGCGCCTTCTACCCGCCCGCCGCCGCCGCCACCGAAGAGATCATCGAGGTG 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGAGGTCGTCGAGTCCCTGAAGGGCTACGAGGGCAGGGTCGCCGTCGCCGCCGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATT 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGAACACCACGGCCTCGTCCCCGACCTGCTCACCGGCCACTCCGTCGGCGAGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCGTCACCACCGCTGGTCACCGGCAATTGCGGCATCAGCCTGGCGCCCCCTGGCGCACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTCGACCGTCACCTCGACCGGCCGCTGCGGGAGATCGTCGCCGCGGGGAGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGAGGAACTGCGCGCGCGCGCCCCGTGTTCGCCGCCGCCCTCGACACCGTGTACGCG 4858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCTCACCGCGTACACCCCAGCCCGCCCTCTTCGCCTTCGAGGTGGCGCTGTTCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
--TATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 73.8; DB 4;
Pred. No. 7e-06;
0; Mismatches 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    747;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                               5809
                                                                                         5749
                                                                                                                        1134
                                                                                                                                                                                     1074
                                                                                                                                                                                                                                               1014
                                                                                                                                                      5689
                                                                                                                                                                                                                                                                              5569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5278
                                                                                                                                                                                                                  5629
                                                                                                                                                                                                                                                                                                             954
                                                                                                                                                                                                                                                                                                                                                                             894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5218
                                                                                                                                                                                                                                                                                                                                                                                                          5451
                                                                                                                                                                                                                                                                                                                                                                                                                                        834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
```

```
; TOPOLOGY: 1; MOLECULE TYPE: US-08-461-775-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
Query Match
Best Local Similarity
                                                                                                                                                     TELEPHONE: (703) 836-6620
TELEFAX: (703) 836-2021
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    equence 9, App
atent No. 5858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENERAL INFORMATION
                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/050,313
FILING DATE: 10-MAY-1993
APPLICATION NUMBER: FR 9011186
FILING DATE: 10-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                              REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 010830-035
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6110 AGCGGCGACGGCGAGTCGCCGGGCGGCGCACCTTCG 6146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1480 GCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5810
                                                                                                                                                                                                                                                                 NTORNEY JAGENT INFORMATION:
NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                          LASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTTCGAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCG 1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCAGCCCTGGCTGGCCGACCACATGGTCAACGGCGCCGTCCTGTTGCCGGCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCCTCGAAGCGCCGCTCGTCCTGCCCGAGCGGGGGCGCCGTCCGCATCCAGGTCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGGGTACT---TCGCCGACCTGGTGTGTTCGACCCGGCCACGGTGGCCGATACCGCC 1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACGGTCGAGGTCGCCGGCGGCGACGGCGTCCTGCTGACCGGCCGTCTCTCCCTGACC 5929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 22313-1404
                                                                                                                        nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T: GUGLIEMI, Gerard
INVENTION: REGULATORY NUCLEOTIDE SEQUENCE OF
INVENTION: INITIATION OF TRANSCRIPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08461775
                                                                                                                                     2167 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       George Mason Bldg., Washington & Prince Sts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MAZODIER, Philippe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Burns, Doane, Swecker & Mathis
                                                                       DNA (genomic)
 46.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/461,775
 Score 73.4; DB 2; Pred. No. 6.8e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1516
                Length 2167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5869
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-031-606-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9; Application US/09031606 Patent No. 6153404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/050,313
FILING DATE: 10-MAY-1993
APPLICATION NUMBER: FR 9011186
                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: MAZODIER, APPLICANT: GUGLIEMI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1418 CATGGCCTTCGACAAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1118
                                      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1178 CTCCCCGGCCGCCTGAAGAAGGGCATCGACGCCGCCGTCGCCGCCGTCTCCCGCCGAGCT 1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1058 CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC 1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    777 GATCTCGCACCACAAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          938 CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               998 CGACGGCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCCCGTACGAGAACCTCGGCGC 1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         297
                                                                                                                                                                                                                                                                                                                                                                          STREET: George M. CITY: Alexandria STATE: Virginia
                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                    MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                     COUNTRY: United States ZIP: 22313-1404
                                                               FILING DATE:
                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                               APPLICATION NUMBER:
    REGISTRATION
                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGCCGCTGAGCGCATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGCCGGCGC 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGTGTCATCAACGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGT 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCGACACCGCGCGCCCGATCGACGACAAGTCCGACATCGCCGCCGCTCGCCGCGCTCTC 1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGACTACCTGGACGCGTTGCGGGCCACGCCGGCCGGCCGTCAACGCCGCCTGTATGGTGGG 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233;
                                                                                                                                                                                                                                                                                                                                                                                                          E: Burns, Doane, Swe
George Mason Bldg.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MAZODIER, Philippe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
, Sharon E
R: 36,113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INITIATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGULATORY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerard
                                                                                                                                                                                             us/09/031,606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1436
                                                                                                                                                                                                                                                                                                                                                                                                                                 Swecker & Mathis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                          Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OF TRANSCRIPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                      Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                 Prince
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           716
```

```
08-461-775-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                 equence 11, stent No. 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
           COMPUTER READABLE FORM:
                                                                                                               CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                     1418 CATGGCCTTCGACAAGGGC 1436
                                                                                                                                                                                                                                                                                                                                                                         1358 CGGTGTCATCAACGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG 1417
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1238
                                                                                                                                   UMBER OF SEQUENCES:
                                                                                                                                                                                                                  ERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1058
                                                                                                                                                                                                                                                                                                                                                    777 GATCTCGCACCACAAGGTC 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          537 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGACGGCATTTC 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (703) 836-20 FORMATION FOR SEQ ID NO:
MEDIUM TYPE:
                             COUNTRY: United States ZIP: 22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.2%;
Local Similarity 46.7%;
hes 233; Conservative
                                                                                                                                                LE OF INVENTION: REGULATORY
LE OF INVENTION: INITIATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EQUENCE CHARACTERISTICS:
LENGTH: 2167 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                        CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCCGGTGGT 776
                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGCCGCTGAGCGCGATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAGCA 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCGACACCGCGCCCCGATCGACGACAAGTCCGACATCGCCGCCGCCGCCGCCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCGGCGCTTCTACCCGCCGCCGCGCCGCGCCACCACCGAAGAGATCATCGAGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCCCCGGCCGCCCTGAAGAAGGGCATCGACGCCGCCGCCGTCGCCGCCGTCTCCGCCGAGCT 1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGGCGGCGC 1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATTCAACGCTGCGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGACGAGGA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC 1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGTCAACGCCGGCTGTATGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACGCCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCCCGTACGAGAACCTCGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCGCCCGCCCCTGGACCTGGTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 997
                                                                        Alexandria
                                                                                                                                                                                                                                 1, Application US/08461775
5858773
                                                        Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : 2167 base pairs
nucleic acid
                                                                                    George Mason Bldg.,
                                                                                                                                                                               MAZODIER, Philippe
GUGLIEMI, Gerard
                                                                                                    Burns, Doane,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
                                                                                               Swecker & Mathis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 73.4;
Pred. No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    010830-035
                                                                             Washington & Prince Sts
                                                                                                                                           NUCLEOTIDE SEQUENCE OF OF TRANSCRIPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.8e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1297
                                                                                                                                                                                                                                                                                                                                                                                                                                        1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                       밁
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                      ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                            1238
                                                                                                                                                                                                                                                                                                                                                                                    1118
                                                                                                                                                                                                                                                                                                                                                                                                                                                1058
                                                                                                                                                                                                                                                                                                                                                      537
                                                                                                                                                                                                                                                                                                                                                                                                                   477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
```

US-08-461-775-11 IELEFAX: (703) 836-2021
INFORMATION FOR SEQ ID NO: 11
SEQUENCE CHARACTERISTICS:
LENGTH: 2668 base pairs
TYPE: nucleic acid .1418 CATGGCCTTCGACAAGGGC 1436 1358 CGGTGTCATCAACGTCGAGGAGTCCAACACCTTCGGTGTCGACCTGGACTTCACCGAGGG 141 1298 CGCGCAGGACAAGCAGGTCGGCGAGCTCATCGCCGAGGCGATGGACAAGGTCGGCAAGGA 417 CGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCAACGCCGCCTGTATGGTGGG 476 938 CGGCCCAAGGGCCGCAACGTCGTCATCGACAAGAAGTTCGGCGCCCCGACCATCACCAA 997 MOLECULE TYPE: NAME: Crane-Feury, Sharon E REGISTRATION NUMBER: 36,113 REFERENCE/DOCKET NUMBER: 01 TELECOMMUNICATION INFORMATION: TELEPHONE: (703) 836-6620 APPLICATION NUMBER: FR 9011186 FILING DATE: 10-SEP-1990 ATTORNEY/AGENT INFORMATION: Local Similarity les 233; Conserv STRANDEDNESS: APPLICATION NUMBER: FILING DATE: 10-MA GATCTCGCACCACAAGGTC 795 CLASSIFICATION: CATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGGAGCTGGACGTGCCGGTGGT 776 APPLICATION NUMBER: GCTCGACACCGCGCGCCCGATCGACGACAAGTCCGACATCGCCGCCGTCGCCGCGCGCTCTC 129 GACCGGCGCCTTCTACCCGCCCGCCGCCCGCCCACCACCGAAGAGATCATCGAGGTGTG CTCCCCGGCCGCCCTGAAGAAGGGCATCGACGCCGCCGCCGTCGCCGCCGTCTCCCGCCGAGCT 1237 AATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTC 596 CGCGACCGTGCTGGCCCAGGCGCTGGTCCGCGAGGGCCTGCGCAACGTCGCCGGCGGCGC 117 CCATTCAACGCTGCGCGCGCGCGCTCATGCCGGACTTGCAGCGCGCCGCCCACCGACGAGGA 536 CCAGCTCGTCAAGGAGGTGGCGACCAAGACCAACGACATCGCGGGTGACGGCACCACCAC 111: CGACGGCGTCACCATCGCCCGTGAGGTCGAGTGCGACGACCGTACGAGAACCTCGGCGC CCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGC 416 APPLICATION DATA: APPLICATION DATA: Conservative linear Patentin Release #1.0, Version DNA (genomic) 10-MAY-1993 single 46.78; PC-DOS/MS-DOS US 08/050,313 US/08/461,775 Score 73.4; DB 2; Pred. No. 7e-06; 0; Mismatches 266 010830-035

0

Gaps

1057

Search completed: May 11, Job time : 235 secs

1357

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                          Score
777733377998877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                        Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            May 11, 2003, 10:48:56; Search time 230 Seconds (without alignments) 9498.588 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-009-782-1
1758
1 gaattccacttgatcgcgga.....ccctgagctacgagaagctt 1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    783854 seqs, 621352466 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Published_Applications_NA: *
                                                                                                                                                                                                                                                                                                                                                                                                                  /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US08_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US08_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US09_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US09_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US10_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US10_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US10_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US60_NEW_PUB_Seq:*
/cgn2_6/ptodata/2/pubpna/US60_NEW_PUB_Seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /cgn2_6
/cgn2_6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/2/pubpna/USO7/cgn2_6/ptodata/2/pubpna/PCT_
                                                                                                                                                                                                                                                                                        Length
                                                      32539
4020
15872
15872
15872
15872
4257
3189
                           13842
13842
                                                                                                                                                         12441
13613
13613
13613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /ptodata/2/pubpna/US06_NEW_PUB.seq:*
/ptodata/2/pubpna/US06_PUBCOMB.seq:*
/ptodata/2/pubpna/US07_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /ptodata/2/pubpna/US07_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                     9 90
                           US-09-976-059-1
US-09-986-3848-7
US-09-986-3848-3
US-09-986-3848-3
US-09-986-3848-3
US-09-986-3848-3
US-09-861-289-3
US-09-861-289-3
US-09-866-867-45
US-09-986-3848-1
US-09-986-3848-1
US-09-861-289-1
US-09-861-289-1
US-09-861-289-1
US-09-861-289-1
US-09-861-289-3
US-09-815-242-4056
US-09-988-3848-3
US-09-988-3848-3
                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1567708
                                              Sequence 1, Appli
Sequence 5, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 4, Appli
                                                                                                                                                                   Sequence 3, Sequence 3, Sequence 3,
                                                                              Sequence 1
Sequence 5
Sequence 5
Sequence 1
Sequence 1
Sequence 1
                                                                                                                                                                                                                                                                                     Description
         Sequence 30, Appl
Sequence 30, Appl
Sequence 30, App
                                                                                                                                                                                                                           Sequence 1, Appli
Sequence 7, Appli
Sequence 7, Appli
                                                                                                                                                                                                               Sequence
                                                                                                                                                                   e 7, Appli
3, Appli
3, Appli
9, Appli
```

													•	
	 8358	35\\$ 	95%		 ::::::::::::::::::::::::::::::::		# 0 I L	SEO :	NGG:	GENERAL APPLI APPLI APPLI APPLI FILE	RESULT 1 US-09-97 ; Sequen	•	c c 44444433333333322222222222222222222	2
LOCATION: OTHER INFO NAME/KEY:	NAME/KEY: LOCATION: OTHER INFO	NAME/KEY: LOCATION: OTHER INF	NAME/KEY: LOCATION: OTHER INF	LOCATION: OTHER INF	LOCATION: OTHER INF	NAME/KEY: LOCATION: OTHER INF	H: E	SOFTWARE:	CURRENT AP CURRENT FI NUMBER OF	ENERAL INF APPLICANT: APPLICANT: APPLICANT: TITLE OF I	6-059 ce 1,		55 600 600 601.	3
(9464) ORMATIC misc_f	(EY: misc_fea (ON: (7703) INFORMATION: (EY: misc_fea	NAME/KEY: misc_feature LOCATION: (6665)(5814 OTHER INFORMATION: ORF	NAME/KEY: misc_feature LOCATION: (4038)(5048 OTHER INFORMATION: ORF	INFORMATION: ORF	NAME/KEY: misc_reature LOCATION: (3118)(403 OTHER INFORMATION: ORF	NAME/KEY: mlsc_fea LOCATION: (2077) OTHER INFORMATION:	18421 C Actinoplanes	PatentIn	APPLICATION FILING DATE F SEQ ID NO	AL INFORMATION: ICANT: Farnet, Chr ICANT: Zazopoulos ICANT: Staffa, Al E OF INVENTION: Ge	)-1 Application		, , , , , , , , , , , , , , , , , , ,	
(8130) N: ORF 6 eature	feature })(6693) !ON: ORF 5	(5814	eature (5048) N: ORF 3	eature (5048) N: ORF 3	eature (4032) N: ORF 2;	feature )(3078) ON: ORF 1		ver		hris Os, Alfr	ation US,		1 37948 0 11220 0 11220 0 11220 0 11220 9 1014 9 1014 9 1014 9 13029 9 13029 1754 5 50937 5 1290 5 1290 5 1290 5 2787 5 2787 5 2787 5 2787 5 14689 4 4689 4 1815	
• •	••			••	•	••	sp.	on 3.0	R: US,	Emmanue edo s and P				
negative strandedness	CO CO	w	positive strandedness	positive strandednes	positive strandednes	positive strandedness		.0	s/09/976,059 -15	l . roteins for	/09976059	ALIGNMENTS	US-09-9861-289 US-09-9861-289 US-09-9861-289 US-09-9861-289 US-09-9861-289 US-09-9861-289 US-09-9861-242 US-09-868-880-1 US-09-73-748-033 US-09-868-880-1 US-09-986-3848-1 US-09	
io.	io.	Č	ta	Σ.	ĭs.				. :	Biosynthesis of				
										Ramoplanin			sequence 5, App Sequence 32, App Sequence 32, App Sequence 32, App Sequence 13, App Sequence 13, App Sequence 14, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 10, App Sequence 40, App Sequence 40, App Sequence 34, App Sequence 34, App Sequence 34, App Sequence 34, App Sequence 34, App Sequence 34, App Sequence 34, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App Sequence 1, App	•
				•		•					٠		5, Appli 32, Appl 32, Appl 32, Appl 32, Appl 13, Appl 13, Appl 1052, Appli 7984, Appli 7984, Appli 7984, Appli 7984, Appli 784, Appl	:

LOCATION: (9691)..(10761)

```
NAME/KEY: misc_feature
LOCATION: (79864). (79107)
OTHER INFORMATION: OR 25;
NAME/KEY: misc_feature
LOCATION: (81624). (79861)
OTHER INFORMATION: OR 26;
NAME/KEY: misc_feature
LOCATION: (81909). (81682)
OTHER INFORMATION: OR 27;
NAME/KEY: misc_feature
LOCATION: (82346). (82062)
OTHER INFORMATION: OR 28;
NAME/KEY: misc_feature
LOCATION: (82346). (82062)
OTHER INFORMATION: OR 28;
NAME/KEY: misc_feature
LOCATION: (82587). (84446)
OTHER INFORMATION: ORF 30;
NAME/KEY: misc_feature
LOCATION: (84481). (85548)
OTHER INFORMATION: ORF 30;
NAME/KEY: misc_feature
LOCATION: (85556). (86845)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature LOCATION: (1588)...(19035) OTHER INFORMATION: OFF 12: PNAME/KEY: misc_feature LOCATION: (19032)...(39713) OTHER INFORMATION: ORF 13: PNAME/KEY: misc_feature LOCATION: (39713)...(65800) OTHER INFORMATION: ORF 14: PNAME/KEY: misc_feature LOCATION: (39713)...(65800) OTHER INFORMATION: ORF 14: PNAME/KEY: misc_feature LOCATION: (65826)...(6530) OTHER INFORMATION: ORF 15: PNAME/KEY: misc_feature LOCATION: (65826)...(6530)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (70659).:(71906)
OTHER INFORMATION: ORF 19;
NAME/KEY: misc_feature
LOCATION: (73439).:(71964)
OTHER INFORMATION: ORF 20;
NAME/KEY: misc_feature
LOCATION: (74216).:(73563)
OTHER INFORMATION: ORF 21;
NAME/KEY: misc_feature
LOCATION: (75424).:(74213)
OTHER INFORMATION: ORF 22;
NAME/KEY: misc_feature
LOCATION: (75535).:(76464)
OTHER INFORMATION: ORF 23;
NAME/KEY: misc_feature
LOCATION: (75536).:(76464)
OTHER INFORMATION: ORF 23;
NAME/KEY: misc_feature
LOCATION: (7510).:(76464)
OTHER INFORMATION: ORF 23;
NAME/KEY: misc_feature
LOCATION: (78110).:(76449)
OTHER INFORMATION: ORF 24;
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (67384)..(70059)
OTHER INFORMATION: ORF 17; F
NAME/KEY: misc_feature
LOCATION: (70099)..(70662)
OTHER INFORMATION: ORF 18; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (13617)..(13802)
OTHER INFORMATION: ORF 9; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (15203)..(13614)
WIHER INFORMATION: ORF 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AME/KEY: misc_feature
OCATION: (66546)..(67370)
THER INFORMATION: ORF 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATION: (12751)..(10829)
HER INFORMATION: ORF 8; negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ME/KEY: misc_feature
CATION: (15591)..(15863)
HER INFORMATION: ORF 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HER INFORMATION: ORF 7; positive strandedness
positive strandedness
                                                                                                                                                                                                                                                                                                                                  negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          negative strandedness
                                                                                  positive strandedness
                                                                                                                                                                  positive strandedness
                                                                                                                                                                                                                                             negative strandedness
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          positive strandedness
```

Qy Db	Q	Д	Dy Oy	Qy Db	p Q	Qy dd	pb Qy	Qy da	Qy db	gg VQ	Qg VQ	Qy	Qy Db	. Oy	D Qy		us.
47070 AGAAGCTGGTCGAGGAGCTCACCCCGGCCC	869 TCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCAT	PARTICGOCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACG 868	4	DY 689 CCACCCACATGCGCGAAGGAGGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCA 748	DY 629 CCACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGATGGCGGGATCTACG 688	DY 569 CCATGGCCAGCGGCGCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCGCGCG	DY 509 ACTTGCAGCGCGCCGCCACGACGAAATCGCGGCCATGCGGGACCTGGCCGAAGGAAG	DY 449 CGGCCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGG 508	DY 389 GCGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGG 448	DY 329 TCAGCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCTGGACCTGCACGTAGAAG 388	DY 269 GCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGGCAATTGCGGCA 328	DY 215 CGCCCGGCTTCATCGACTCGCACACCCACGACGACGACGACGACTACCTGCTCAGGCGTC 268	DY 155 TOGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGGTCG 214	DY 95 GCAGCAACACCCCGGGGCGGCGGCGCGGCCGACCGTGGGCGGCGACCGCATCGCCGCA 154	35 TGTCCC          46230 TGGCCC	Query Match 4.9%; Score 86; DB 9; Length 88421; Best Local Similarity 43.1%; Pred. No. 1e-10; Matches 605; Conservative 0; Mismatches 775; Indels 24; Gaps 3;	NAME/KEY: mi LOCATION: .(6 OTHER INFORM NAME/KEY: mi LOCATION: .(6 OTHER INFORM -09-976-059-1

```
밁
                                                                                δÃ
                                                                                                                 B
                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-860-846-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 43
SOFTWARE: FASTSEQ for Windows Version
SEQ ID NO 7
LENGTH: 1248
TYPE: DNA
                                                                                                                                                                             Matches
                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/09860846 Patent No. US20020164742A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                        ORGANISM: Streptomyces venezuelae 09-860-846-7
                                                                                                                                                                                                                                                                                                                                             APPLICANT: Zhao, L. PAPLICANT: Zhao, L. PILE OF INVENTION: DNA encoding methymycin and pikromycin FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/860,846
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Sherman, D.H. APPLICANT: Liu, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     47412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47184 CGATGTCGGTGCCGACCGGCGCGCGTTCCGGCCAAGTTCGACCTCGACCTCACGTTCA 47243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1109
                         152
                                              Local
                                                                                    92
                                                                                                                                                32
CCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGCTGTCTGGGCCTGGTGG
                                                                         ACGGCAGCAACACCCCGGGGCGGCGCGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCCG 151
                                                                                                         CCGAGATCACCGTCGCGGCGCTCGTCGCCGAGCAGTGCGCCCGCACGCCGGGTGCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGCCCGCTGGCTGCGCCGCCACG 47615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAACGGCGCGCCGGTCTGGCAAG 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGATACCGCCACCTTCGAACACCCTACCGAGCGCGCCGCCGGCATCCATTCCGTGTACG
                                                                                                                                                                             al Similarity
439; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGGCAGCTGCAGGCCGGGTACTTCGCCGACCTGGTGTTCGACCCGGCCACGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGTGCTCGCGGCCGATCCGCGGCGGCGCCGGCCGAGGTCGA------CCCGC 4741;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTATGCGCGCGACCTGGGCCTGTTCCCCGC 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGACCTCTTCGACGCGGCACGGCCGCCCGGCCTCGCCGGCTACCTGAGCCGCGTTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGCCCGACCATGATCGGCTCCGACGGCCTGCCGCACGACGACGCCCCGCATCCGCGCC 1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAGACCTTCGACGCGGGGGGGGGGCCGGCCTGCGCGTCGACCTCATCGCGGCGG 4730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCAGGTCATGGTCACCCTGGACGGCGGCCGGACGGCCGGGCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCGGCCGGCGCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Liu, H.
                                                                                                                                                                           Conservative
                                                                                                                                                                                      44.28;
                                                                                                                                                                         0
                                                                                                                                                                                     Score 81.8; DB 9;
Pred. No. 1.4e-09;
                                                                                                                                                                        Mismatches 542;
                                                                                                                                                                                                                                                                                                                  3.0
                                                                                                                                                                                                 Length 1248;
                                                                                                                                                                        Indels
                                                                                                                                                                      12;
                                                                                                                                                                   Gaps
                                                334
                                                                                                           274
                                                                                                                                        91
                211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47183
                                                                                                                                                                     2
```

```
Ş
                                                                   RESULT 3
US-09-988-384B-7
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
Sequence 7, Application US/09988384B Publication No. US20030073824A1 GENERAL INFORMATION:
                                                                                                                                                         1172
                                                                                                                                                                                                                                      1112 ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                          1052 CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                          923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           512
                                                                                                                                                                                                                                                                                                                                                                                                              992 CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCGCTGCCGCACA 1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    632 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         632 TCACCGACGACGCCGACCTCGCCCGCGCGCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          575 AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     392 GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              515 CCGCGCACGCCTCGGCTGCGCGGTCGACGGCCGGCCGGCAGCCTCGGCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         332 GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272 ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        395 CCGCCGCGGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              212 TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         335 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                              GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                             GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG 982
                                                                                                                                                     CGCGCCACCGCGACACGGCCCCCGCCCCGCTCG 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
                                                                                                                                                                                                                                                                                                                                                                 AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG------GCCGCCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGGCCTCACCTCCGACGCGTTTCCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCCCGGCGGCAGCCGGCGGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCAGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGGGCCATGCCGGACT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   271
```

APPLICANT: Zhao, L. TITLE OF INVENTION: DNA encoding methymycin and FILE REFERENCE: 600.536US1
CURRENT APPLICATION NUMBER: US/09/988,384B
CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: PCT/US99/14398

pikromycin

APPLICANT: Sherman, D.H. APPLICANT: Liu, H.

APPLICANT:

```
Ş
                                                                                                                                 밁
                                                                                                                                                                                                                     Ş
          몆
                                      S
                                                                      밁
                                                                                                                                                           Ş
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-988-384B-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NO 7 SEQ ID NO 7 LENGTH: 1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 1999-06-25
PRIOR APPLICATION NUMBER: US (
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 53
          1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Streptomyces venezuelae
                                                                      992
                                                                                                                                 932
                                                                                                                                                             752
                                                                                                                                                                                          872
                                                                                                                                                                                                                      692
                                                                                                                                                                                                                                                                                 632
                                                                                                                                                                                                                                                                                                                              692 TECCCEGCEGCAGCCCCGCCGGCGGGACCAACGCCAAGATGAGCGGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                    752 TGGGCCTCACCTCCCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                        512 TGCAGCGCGCCGCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                         632 TCACCGACGACGCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   $55
55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity 44.28; les 439; Conservative
CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                          AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                     TCGGCCGCTCGCGGAGACGCTGCCGCTGATCGAG-------GCCGCCATGGCGCGCC 862
                                                                                                                                            GCCGCGAGCTGGACGTGGCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                          CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                           CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCCGCTGCCGCACA
                                                                                                                    ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGCGCCTACTTCT
                                                                                                                                                                               ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                         CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGGCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCGCCCGGCTTCATCGACTCGCACACCCACGACAACTACCTGCTCAGGCGTCGCG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATCGGCGATCTGTCGGACGCCGCCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGG 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTGGCGCTGGCGCACGCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGCAGCAACACCCCGGGGGGGGGCGCGCGACCTGGGGGGTGCGCGACCGCATCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             09/105,537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 81.8; DB 9;
Pred. No. 1.4e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                            105
                                                                                                                                                                               931
                                                                                                                                                  811
                                                                                                                                                                                                                                          871
                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                  631
                                                                                                                                                                                                                                                                                                                                                              751
                                                                                                                                                                                                                                                                                                                                                                                          571
                                                                                                                                                                                                                                                                                                                                                                                                                          691
                                                                                                                                                                                                                                                                                                                                                                                                                                                      511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'n
```

```
밁
                                       S
                                                                       밁
                                                                                                  Ş
                                                                                                                                    멼
                                                                                                                                                               Ş
                                                                                                                                                                                                밁
                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-861-289-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-861-289-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: 09/105/537
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Sherman, D.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 7, Application US/09861289 Patent No. US20020110897A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Xue, Y.
APPLICANT: Zhao, L.
APPLICANT: Zhao, L.
APPLICANT: Zhao, L.
APPLICANT: DNA encoding methymycin (
FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/861,289
CURRENT FILING DATE: 2001-05-18
CURRENT FILING DATE: 09/105,537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 1248
           692
                                         512
                                                                       632
                                                                                                     452
                                                                                                                                    575
                                                                                                                                                                                              515
                                                                                                                                                                                                                           332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1172
                                                                                                                                                                392
                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                      395
                                                                                                                                                                                                                                                                                                                            212 TCGCGCCCGGCTTCATCGACTCGCACACCACGACGACGACTACCTGCTCAGGCGTCGCG 271
                                                                                                                                                                                                                                                                                                                                                                       335 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                    215 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGGCCTCACCGGCG 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1112
                                                                                                                                                                                                                                                                                                                                                                                                    152 CCATCGGCGATCTGTCGGACGCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                92 ACGGCAGCAACACCCCGGGGCGGCGCGCCGACCTGGGCGTGCGGGGGGGACCGGCATCGCCG 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32 CCATGTCCCAATCCGAGTCCCAGCCTTCCGACCTGCTGCTGCGGGGCGGCGCACCCTCATCG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           923
TGCCCGGCGGCAGCCCGCCGGCGGCACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCCA
                         TGCAGCGCGCCACCGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCCAGGAAGCCA
                                                              TCACCGACGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCCTTCGACC
                                                                                          CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACT
                                                                                                                                                                                                                                                GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                           ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                            CCGCCGCGGTCACACCCCGCCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                                                                                        AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                     GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGG
                                                                                                                                                                                     GCCTGGCGCCGCTGGCGACGCCAACCCCGCCCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCGCCACCGCGACACGGCCCCCGCCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Liu, H.
Xue, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 81.8; DB 10;
Pred. No. 1.4e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 542; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                               571
   751
                                                              691
                                                                                            511
                                                                                                                          631
                                                                                                                                                       451
                                                                                                                                                                                     574
                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                 514
                                                                                                                                                                                                                                                                                                            454
                                                                                                                                                                                                                                                                                                                                                                       394
                                                                                                                                                                                                                                                                                                                                                                                                     211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    982
```

'n

```
문
           맑
                                       S
                                                                                                    Š
                                                                                                                                     밁
                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Zhao, L. DA encoding methymycin and TITLE OF INVENTION. DA encoding methymycin and FILE REFERENCE: 600.536US1
CURRENT APPLICATION NUMBER: US/09/988,384B
CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: PCT/US99/14398
PRIOR FILING DATE: 1999-06-25
PRIOR APPLICATION NUMBER: US 09/105,537
PRIOR FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-988-384B-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                  Matches 439;
                                                                                                                                                                                                                                                                                                                              SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/09988384B Publication No. US20030073824A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                               ·09-988-384B-3
                                                                                                                                                                                                                                                                   LENGTH: 12441
TYPE: DNA
ORGANISM: Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS:
11862 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Sherman, D.H.
                                                                                                                                     11982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1052 CCGAACGCCTCGCCGCGCGCGTGCTGCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                      32 CCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATCG 91
                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             572
                               CCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG
                                                             CCACCTGCAACGCCACGGCCGCGCTCCAGCTCCTCGCGCACGCCGCCGCCTCACCGGCC 11923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCGCCACCGCGACACGGCCCCCGCCCCGCTCG 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCGGCCGCTCGCGCAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCGCACGCCCGCTGCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC 871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGGATCGACGAGGCCACCACCGGCATCC 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGGCCTCACCTCCGCCGACGCGTTTCCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCCCGCGCCCA 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Xue, Y
                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                              4.78;
                                                                                                                                                                                                       Score 81.8; DB 9;
Pred. No. 1.1e-09;
                                                                                                                                                                                            Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pikromycin
                                                                                                                                                                                                                        Length 12441;
                                                                                                                                                                                          Indels
                                                                                                                                                                                        12;
                                                                                                                                                                                     Gaps
 11803
                               211
                                                              11863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                       2
```

```
RESULT 6
US-09-860-846-3/c
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
                                                                                                                                                                                                                                Sequence 3, Application US/09860846 Patent No. US20020164742A1
APPLICANT: Zhao, L.
TITLE OF INVENTION: DAA encoding methymycin
FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/860,846
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                             11025 CGCGCCACCGCGACACGGCCCCCGCCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11505 TGCCCGGCGGCAGCCCCGCCGGCGGCACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11565 TCACCGACGACGCCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC 11506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11622 AGGICTICAGCITCCA----CGCCACCAAGGCCGTCAACGCCTICGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                 983 GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            632 CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      572 TGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCGCCA 631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              512 TGCAGCGCGCCGCCACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGCCGCGAACTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGCGGCAGCCCGCACGCCCGCTGCCGCACA 11146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC 11266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCACATGCGCGACGAAGGCGACCATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCG 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGGCCTCACCTCCCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGTCAACGCCGCCTGTATGGTGGGCCATTCAACGCTGCGCGCCGCGGTCATGCCGGACT 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCGCACGCCTCGGCTGCGCGGTCGACGGCCGGCCGCCGGCAGCCTCGGCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCTGGCGCCGCGCACGCCAACCCGCCCCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCGCGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGCGCCCGGCTTCATCGACTCGCACACCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGAGCACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                      Xue, Y.
                                                                                                                                                                    Liu, H.
                                                                                                                                                                                                                                                                                                                                               10993
                                                                                                              and
                                                                                                            pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                           982
                                                                                                                                                                                                                                                                                                                                                                                                                     11026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        271
```

for

Windows Version

3.0

```
Ş
                                                      밁
                                                                              Š
                                                                                                              밁
                                                                                                                                       S
                                                                                                                                                                     밁
                                                                                                                                                                                               S
                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 13613
; TYPE: DNA
; ORGANISM: Streptomyces
US-09-860-846-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 44.2%; Matches 439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: FastSEQ
SEQ ID NO 3
                                                    11832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                              11892
                                                                                                                                                                     11952
                                                                                                                                                                                                                 12012 ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCACCGGCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              12252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12309 AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGGCGCCGTCG
                                                                                                                                                                                                                                                                                      12072
                                                                                                                                                                                                                                                                                                                                              12132
                                                                                                                                                                                                                                                                                                                                                                                                       12192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12669 CCACCTGCAACGCCACGGCCGGGCTCCAGGTCCTCGCGCACGCCGGCGCGCCTCACCGGCG 12610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                923
                                                                                                                                         812
                                                                                                                                                                                   752 GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                  632
                                                                                                                                                                                                                                                                                                                                                                           572
                                                                                                                                                                                                                                                                                                                                                                                                                                   512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTGCTGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG
                                                                                                                                                         ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCCGCGCCTACTTCT
                                       CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG 11773
                                                                   AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC
                                                                                              CGCCGGGCTGCCACGAGCTGGAGCCGTACCGCGGGCAGCCCCACGCCCCGCTGCCGCACA
                                                                                                                          TCGGCCGCTCGCGCAGACGCCTGCCGCTGATCGAG-----GCCGCCCATGGCGCGCC
                                                                                                                                                                                                                                        CCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCGCTGGAGGAAACCTTCCGCATCG
                                                                                                                                                                                                                                                                         CCGCCTACCGCGAGCACCTCGCGGACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                    CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCA 691
                                                                                                                                                                                                                                                                                                                                                             TGCAGCGCGCCGCCACGACGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGGCCTCACCTCGACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                TCACCGACGACGCCGACCTCGCCGCCCGGATCCGCGCCCTCCACAACTTCGGCTTCGACC 12193
                                                                                                                                                                                                                                                                                                                                                                                           TGCCCGGCGGCAGCCCGCCGGCGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCCGCGGTCACACCCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT 12430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCATCGGCGATCTGTGGGACGCCGCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGCG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGGCCTGCGGCTGTACTTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCCCGGTCTTCGCCGACATCGACCCGGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 81.8; DB 9;
Pred. No. 1.1e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 13613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                     922
                                                                                                                              862
                                                                                                                                                                                      811
                                                                                                 11833
                                                                                                                                                         11893
                                                                                                                                                                                                                                              751
                                                                                                                                                                                                                                                                          12013
                                                                                                                                                                                                                                                                                                                                  12073
                                                                                                                                                                                                                                                                                                                                                               631
                                                                                                                                                                                                                                                                                                                                                                                           12133
                                                                                                                                                                                                                                                                                                                                                                                                                        571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
```

```
밁
                                                                               Ş
                                                                                                                                                    밁
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-861-289-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-861-289-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 4.7%;
Best Local Similarity 44.2%;
Matches 439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: FastSEQ for Windows Version SEQ ID NO 3 LENGTH: 13613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3, Application US/09861289 Patent No. US20020110897A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Lhao, L.
TITLE OF INVENTION: DNA encoding methymycin
FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/861,289
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR PILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
COMMUNICATION SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECURIARY SECUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                       12132
                                                                                                                                                                                                                                                                           12252
                                                                                                                                                                                                                                                                                                                                                                                                         12309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12669 CCACCTGCAACGCCACGGCCGGGCTCCAGCTCCTCGCGCACGCCGCCGGCCTCACCGGCG 12610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Xue, Y. APPLICANT: Zhao, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Sherman, D.H. APPLICANT: Liu, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12549 TCACCCCGGTCTTCGCCGACATCGACCCGGACACCGGCAACCTCGACCCGGACCAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11712 CGCGCCACCGCGACACGGCCCCGCCCCGCTCG 11680
                                                           11772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  332
232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            212 TCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGGCCTCACCTCCACGCGTTTCCCGAGGTCATCGACCGGAACCGGCGCAACCACG 12073
                                                                                                                      TGCCCGGCGGCAGCCCGGCGGGGGGACCAACGCCAAGATGAGCGAGGCCGCCGCCGCCCA 12133
                                                                                                                                                                                                                                                    TCACCGACGACGCCGACCTCGCCGCGCCCGGATCCGCGCCCTCCACAACTTCGGCCTTCGACC 1219:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCTGGACCTGCTGGACGAAGGCG
                                                                                                                                                                                     TGCAGCGCGCCGCCACCGACGAGGAAATCGCGGGCCATGCGGGACCTGGCCGAGGAAGCCA : 571
                                                                                                                                                                                                                                                                                                            AGGTCTTCAGCTTCCA---CGCCACCAAGGCCGTCAACGCCTTCGAGGGCGCGCGCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCGCACGCCTCGGCTGCGCGGTCGACGGCCGGCCGCCGGCAGCCTCGGCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCCGCCGACCAGCTGCGGAAGGTCGCCGACGACGACGCCTGCGGCCTGTACTTCGACG 12370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCA 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCCGCGGTCACACCCCGCACCTCGGCCGTCGTCGGCGTCCACCTCTGGGGGCCGCCCCT 12430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACATCCGCCGGGTCGCCGACCTGCTGCGCGTCTCTGCGCGACCCGGGCCGGGAACTGACCG 11713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 81.8; DB 10;
Pred. No. 1.1e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 542; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 13613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                211
                                                                                                                                                                                                                                                                                                                                                                                     12253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
```

```
Š
                         Š
                                                           B
                                                                                         Ş
                                                                                                                                 뭐
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                 ; LENGTH: 4341
; TYPE: DNA
; ORGANISM: Streptomyces refuineus subspecies thermotolerans
US-10-166-087-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-166-087-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                unery match 4.5%; Best Local Similarity 41.9%; Matches 474; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 45, Application US/10166087 Publication No. US20030077767A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/10/166,087
CURRENT FILING DATE: 2002-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Ecopia Biosciences Inc.
APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 51
SOFTWARE: PatentIn versi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Zazopoulos, Emmanuel TITLE OF INVENTION: Genes and proteins for FILE REFERENCE: 3014-2US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12072
271 GACATGACGCCCAAGATCTCGCAGGGGGTCACCACGGTGGTCACGGGCAATTGCGGGCATC 330
                                                                                                                                                                                                                                                                     595
                                                            775
                                                                                                                                                                 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       863 AGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACC 922
                                                                                                                                                                                                                                   91
                                                                                                                                                                                                                                                                                             31 TCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCGGGGGGGCACCCTCATC
                                                    CTCGCCTTCGTGCTGCACCGGCACACCGGGCAGGACGACATCCTCCTCGGCGTCCCG
                                                                                    GTCGCGCCCGGCTTCATCGACTCGCACACCCACGACGACAACTACCTGCTCAGGCGTCGC
                                                                                                                                                        GCCATCGGCGATCTGTCGGACGCCGCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTG
                                                                                                                                                                                                                        GACGGCAGCAACACCCCGGGGCGGCGCGCGCGACCTGGGCGTGCGCGGCGACCGCATCGCC
                                                                                                                                                                                                                                                            GCGCAGGTGAAGACGTTCTGCGCCACCGAGGGCATCACCACCGGCATGTTCTTCGCCGCC
                                                                                                                                                                                            CCGGGGGAGGGCCCCGCGCGCCACGACCCACAAGGCCCGTCCTCGACGACCGGCTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCGCGACCTGGATGAAGTCGCGGCCGAGCGCG 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCG 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGCGAGCTGGACGTGCTGGTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGGCCTCAACAACCACCAGTACGTGATCGTCGAGATCGACGAGGCCACCGCCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATCCGCCGGGTCGCCGACCTGCTGCGTCTCTGCGCGACCCGCGGGCCGCGAACTGACCG 11713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGAACGCCTCGCCGCGCGCGTGCTGTCCCTGCCGACCGGCACCGCCATCGGCGACGACG 11773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAG------GCCGCCATGGCGCGCC 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGCGACCTCGTCATGGAGGTCCTGAAGGCCGAAGGCGTGCACACCCGGCGCCTACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCCTACCGCGAGCACCTCGCGGAACCTCCCCGGCGTCCTCGTCGCCGACCACGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCACCGAAGAGATCATCGAGGTGTGCCGGCCGCCTGAGCGCGCATGGCGGCATCTACGCCA
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                  Score 79.2; DB 9;
Pred. No. 4.6e-09;
0; Mismatches 658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the biosynthesis of anthramycin
                                                                                                                                                                                                                                                                                                                                                                 Length 4341;
                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                            150
                                                       834
                                                                                                                        774
                                                                                                                                                          210
                                                                                                                                                                                            714
                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                90
                                                                                      270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12013
                                                                                                                                                                                                                                                                                                                               0
```

RESULT 9 US-10-166-087-1

Sequence 1, Application US/10166087 Publication No. US20030077767A1 GENERAL INFORMATION:

APPLICANT: Ecopia Biosciences Inc. APPLICANT: Farnet, Chris APPLICANT: Staffa, Alfredo

CURRENT APPLICATION NUMBER: US/10/166,087
CURRENT FILING DATE: 2002-06-11
NUMBER OF SEQ ID NOS: 51

APPLICANT: Zazopoulos, Emmanuel TITLE OF INVENTION: Genes and proteins for FILE REFERENCE: 3014-2US

the biosynthesis of anthramycin

APPLICANT:

```
밁
                                                                             닭
                                                                                                            Š
                                                                                                                                                     닭
                                                                                                                                                                                      S
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                           1615
                                      1111
                                                                                                                                                                                                                                                                                                                                                                                 1375
                                                                                                                1051
                                                                                                                                                     1555
                                                                                                                                                                                                                               1495
                                                                                                                                                                                                                                                                                                         1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1135 GTCTCCGGGGGCGCCAAGTACGAACTGGCGGTCGTGGTGGACGACGACGCCGGGCCGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1255
                                                                                                                                                                                                                                                                                                                                            871
                                                                                                                                                                                          991
                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            511 TTGCAGCGCGCCCACCGACGAGGAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              331 AGCCTGGCGCCGCTGGCGCACGCCAACCCCGCCCGCCCCTGGACCTGCTGGACGAAGGC 390
                                 CCGGTGGCCGTGCTGATGCGGCCGGGGCTCGACCTGGTGGCGACCGTCGTCGGCATCCTG
                                                                                                                                                                                CTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTGCAG 1050
                                                                                                                                                                                                                       GCGCGGCAGGCCGACGCCGTGGCGGCCGGACCTGGCCGCGCGGGAGTGCGGGACGGGCGG
                                                                                                                                                                                                                                                                                                                                      TCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                         CAGGACGCGCCGAGCTGGGCACCGAGGTGACGGCCGACCTGTTCGCCGAGGCCGCCGCG 1434
                                                                                                                                                                                                                                                                                                                                                                                                              TTCGGCCGCTCGCGAGACGCTGCCGCCTGATCGAGGCCGCCATGGCGCCCAGGACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACGAGGTCATGGGCCCAGCCCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCGGCGCTGGAGACGCTCGTGCGCAGCGTGATGGCCGAACCCGGACACGGACGTCCGC
GCGCTGGCCGACAGCGGCGCGAAGATCCTGCTGCACGACCCGGACGCCGACC 1726
                                                                      CGGGCGGCCAGCTACGTGGTCCTCGACGCCGACCAACCGCGGGAACGGCTGTCTTTC
                                                                                                         CCGGCCGCCCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTC
                                                                                                                                                                                                                                                              CTGGCCGGACGCACCATCATCACCTGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGAC
                                                                                                                                                                                                                                                                                                 GCGGCGGCCGACCCCGCCGTGGTCGCGGACGCGTGGTGACGTCCTACGCCGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCTGCGCTGAGCGCGGAGGAGGAGCGGCCGTCACCGGCCTGTGCGCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGCTGGTCGTCGAGCACACCTCGGCCTCGGCCGGCGCGCGGAAGCCTCGCGGCGTACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCCGGCCTCCGCCGCCGCCTGGACCTGCGCGAGTGGGAAGTGGGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGCCCTGGGAGGCGGCAAGGACGGCGGTCGGCGACCTGTTCAACGCGATGCTCACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACATGCTCGACGCGCTGCGGCACCGGCATGTCCCGCTGGAGGCGGTGGTCGGCGAACTC 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCG 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCACCGTGCGGGGAGCGGCGACGCCGAGGTCGTCGGGCACCTGACCAACACGGTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCCACATGCGCGACGAAGGCGAGCACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCGGCACCGGCTGGCCCCGGAGCGACCGCCGACGTCCACGCGGTGAAGCGG
                                                                                                          1110
                                                                                                                                               1614
                                                                                                                                                                                                                         1554
                                                                                                                                                                                                                                                                                                   1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1074
                                                                                                                                                                                                                                                              990
                                                                                                                                                                                                                                                                                                                                      930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               954
```

```
Ş
                                Ş
                                                                  밁
                                                                                                                                 밁
                                                                                                                                                               S
                                                                                                                                                                                               밁
                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; TYPE: DNA
; ORGANISM: Streptomyces refuineus subspecies thermotolerans
US-10-166-087-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 474; Conserv
                                                                                                            25791 CAGGACGCGCCCGAGCTGGGCACCGAGGTGACGGCCGACCTGTTCGCCGAGGCCGCCGCGCG 25850
                                                                                                                                                                                                                                                              25671
                                                                                                                                                                                               25731
                                                                                                                                                                                                                                                                                                            25611 ACGCTGGTCGTCGAGCACACCTCGGCCTCGGCCGGCGCGGAAGCCTCGCGGCGTACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                             2551. GTCTCCGGGGGCGCCAAGTACGAACTGGCGGTCGTGGTGGACGAGACGCCGGGCCGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25371 GACATGCTCGACGCGCTGCGGCACCGGCATGTCCCCCCTGGAGGCGGTGGTCGGCGAACTC 25430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25311 CTGCGGCACCGGCTGGCCCCCGGAGCGACCGCCGCGACGTCCTGCACGCGGTGAAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            25491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25431 CGCGCCCTGGGAGGCGGCAAGGACGGCGTCGGCGACCTGTTCAACGCGATGCTCACGGTG 25490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25191 CTCGCCTTCGTGCTGCTGCACCGGCACACCGGGCAGGACGACATCCTCCTCGGCGTCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25131 GCGCAGGTGAAGACGTTCTGCGCCACCGAGGGCATCACCACCGGCATGTTCTTCGCCGCC 25190
25071 CCGGGGGAGGGCCCCCGCGCGCACGTGACCCACAAGGCCGTCCTCGACGACCGGCTGTCC
                                                                                                                                                                                                                                                                            25011
                                                                                                                                                                                                                                                                                                                                                                                                           571 ATGGCCAGCGGCGATCGGCATTCGACCGGCGCCTTCTACCCGCCGCCGCCGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  451 GCCGTCAACGCCGCCTGTATGGTCGGCCATTCAACGCTGCGCGCCGCGGGTCATGCCGGAC 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 32539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211 GTCGCGCCCGGCTTCATCGACCGACACCCACGACGACAACTACCTGCTCAGGCGTCGC 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCGGCCGACCCCGCCGTGGTCGCGGACGGCGTGGTGACGTCCTACGCCGAGCTG
                                                                              TCGCTGGACGCGTATCCCTACGTGGCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTG
                                                                                                                                            TTCGGCCGCTCGCGAGACGCTGCCGCTGATCGAGGCCGCCATGGCGCGCCAGGACGTC
                                                                                                                                                                              GCGCGGCGCCTGGAGACGCTCGTGCGCAGCGTGATGGCCGACCCGGACACGGACGTCCGC
                                                                                                                                                                                                           GCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACCACGAGGTCATGGGCCCAGCCCAAT 810
                                                                                                                                                                                                                                                                                                                                           ACCACCGAAGAGATCATCGAGGTGTGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGCCGGCCTCCGCCCGCCTGGACCTGCGCGAGTGGGGAGTGGAGACGTGGGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGCAGCGCGCCGCCACCGACGAACGAAATCGCGGCCATGCGGGAACCTGGCCGAGGAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCACCGTGCGGGGAACGGCGACGCCGAGGTCGTCGGGCACCTGACCAACACGGTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCCTGGCGCCGCTGGCGCACGCCAACCCGCCCGCCCCCTGGACCTGCTGGACGAAGGC 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACGGGCAATTGCGGCATC 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCATCGGCGATCTGTCGGACGCCGCCGCGCACACCCCGGGTCGACGTGTCGGGCCTGGTG 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOSCTOTOCCACTOSCTOSACAASCTGGCGGACGCGCCGCGGGGGCGCCCCGTCGGACTG 25070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches 658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 79.2; DB 9;
Pred. No. 3.7e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 32539;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                              930
                                                                                                                                                870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                 25910
                                                                                                                                                                                25790
                                                                                                                                                                                                                                               25730
                                                                                                                                                                                                                                                                             750
                                                                                                                                                                                                                                                                                                              25670
                                                                                                                                                                                                                                                                                                                                              690
                                                                                                                                                                                                                                                                                                                                                                              25610
                                                                                                                                                                                                                                                                                                                                                                                                                                           25550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2525(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

Ouery Match 4.3%; Best Local Similarity 44.6%;

Matches 434; Conservative

몆 Ş 밁 δõ

GCTGCTGGACGCGGGGGGGGGTGAACGAGGGCAACACCTACGGCGTAACGCCGCTGCA 3350 GCCGCTGAGCGCATGGCGGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACAT 719

CGTGTACGCCAAGAACCAGTGGATCCGCGAGGACGTGCTGCTGCTGCTGCTCGAGCGCGG 3290

Ş 밁 Ş 8 Ş 멍 Qy 밁

600

3526

540

3586 CACGCCGCTGCACGCCTACGTGCAGTACGACGGCGTGCGGCCGGAGGTGGTCGCCCCTCAT 3527

599

480 TICAACGCTGCGCGCGGTCATGCCGGACTTGCAGCGCGCCGCCACCGACGAGGAAAT 539

3646 GATCGTGCGCGTGCTGGAGGCCGGTGCGGACGTGAAAGCCAAGGACTCCTGCGGCCG

3587

420 CTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGCCGTCTATGGTGGGCCA 479

360 GCCCGCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGA 419

Score 75.8; DB 9; Pred. No. 2.6e-08; 0; Mismatches 527;

Length 4020; Indels

12;

Gaps

3469

GCTCTCCTTCCTGGCTTTCTGCGGCCCCGACGCGCGAGCTCGAGGTCGCGCGGCT 3410

CGGCGCCTTCTACCCGCCCCCCCCCCCCCCCCCACCACCAAGAGATCATCGAGGTGTGCCG 659 GCTGG---AGGCGGGGGGGGGGGTGGTGGTGTGGGGACGCCAGCGTCGTTGTCTGCGACAGCGT 3470 CGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGAC

```
: LENGTH: 4020
: TYPE: DNA
: ORGANISM: Orf virus strain NZ-2
US-09-796-679-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 10
US-09-796-679-5/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                         SOFTWARE: PatentIn SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5, Application US/09796679
Publication No. US20030013076A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                   APPLICANT: Robinson, Anthony J
APPLICANT: Lyttle, David J
APPLICANT: University of Otago
TITLE OF INVENTION: PARAPOXVITUS VECTORS
FILE REFERENCE: 23607 MRB
CURRENT APPLICATION NUMBER: US/09/796,679
CURRENT FILING DATE: 2001-03-30
                                                                                                                                  PRIOR APPLICATION NUMBER: NZ 286284 PRIOR FILING DATE: 1996-03-29
                                                                                                                                                                        PRIOR APPLICATION NUMBER: PCT/NZ97/00040 PRIOR FILING DATE: 1997-03-27
                                                                                                                                                                                                                      CURRENT FILING DATE: 2001-03-30 PRIOR APPLICATION NUMBER: 09/155,421 PRIOR FILING DATE: 1998-09-29
                                                                                                                       NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25911 GCGCGGCAGGCCGACGCCGTGGCGGGCGGACCTGGCCGGGGAGTGCGGGACGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      991 CTGGATGAAGTCGCGGCCGAGCGCGAAATCCAAGTACGACGTGGTGCCCGAGCTGCAG 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCTGGCCGACAGCGCGCGAAGATCCTGCTGCACGACCCCGGACGCCGACC 26142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGCCGGCGCATCTACTTCATGATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTC 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGCGGCGGCAGCTACGTGGTCCTCGACGCGACCAACCGCGGGAACGGCTGTCTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGTGGCCGTGCTGATGCGGCCGGGGCTCGACCTGGTGGCGACCGTCGTCGGCATCCTG 26030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25970
```

```
S
                                            밁
                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-860-846-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                            Query Match 4.2%;
Best Local Similarity 43.2%;
Matches 586; Conservative
                                                                                                                                                                                                                                                         SOFTWARE: FastSEQ for Windows Version 3.0 SEQ ID NO 1
                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FRACE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09860846 Patent No. US20020164742A1
                                                                                                                                                                                     ORGANISM: Streptomyces venezuelae -09-860-846-1
                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: DNA encoding methymycin and FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/860,846
CURRENT FILING DATE: 2001-05-18
                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sherman, D.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                      PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPLICANT:
                                  4799 GGCGAGGAACTGCGCGCGCGCACCCCGTGTTCGCCGCCGCCCCTCGACACCGTGTACGCG 4858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3229
                                                                   175 GCCGCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCG 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGGTGGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCTGGGGCA 1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCGCGCTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCGGAGCTCGAGCACATGTCGGCCTCGGGCCTATGCGGGGTTTCGGAGATGCTGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCGCCGCGCTTCGGCCTGGCCGGGCAGCTGCAGGCCGGGTACTTCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGCACCGCGC---GCGGTGTTCAGCCACGGCGCCTGCTGCCGGCTGGTGCGCATGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCCGACCATGATCGGCTCCGACGGCCT 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGTGGGAACACCATGCTGCACTACATGGCGACCTACGGGAGCTGCGAGCGCGCGTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCAAGTACGACGTGGTGCCGGAGCTGCAGCCGGCGCGCCATCTACTTCATGATGGA 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGCATGGTGCGCACGCTCACGGGCCTAGGCGTGGA-----CCCGGCCGCCGTAGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGCAA 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGAACCCAAACGCCTGCGACTGCAACGGCTTGACGCCGCTGGCGGCGCTGCTGCTCC 3230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCGCACCAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCT
                                                                                                                                                                                                                                         15872
                                                                                                                                                                                                                                                                                                                                                                                                                  Liu, H.
Xue, Y.
Zhao, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1332
                                                                                                              0;
                                                                                                                           Score 73.8; DB 9;
Pred. No. 6.3e-08;
                                                                                                            Mismatches 747;
                                                                                                                                                                                                                                                                                                                                                                                              pikromycin
                                                                                                                                             Length 15872;
                                                                                                          Indels 24;
                                                                                                      Gaps
   294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    839
                                                                                                        4:
```

```
ş
                                                                                  Ş
                                                                                                                        밁
                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                              . 말
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                      1249
                                                                                                                        5810
                                                                                                                                                      1195
                                                                                                                                                                                      5750
                                                                                                                                                                                                                     1135
                                                                                                                                                                                                                                                     5690
                                                                                                                                                                                                                                                                                     1075
                                                                                                                                                                                                                                                                                                                                                   1015
                                                                                                                                                                                                                                                                                                                                                                                   5570
                       1303
                                                                                                                                                                                                                                                                                                                     5630
                                                                                                                                                                                                                                                                                                                                                                                                                                                  5510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5279. TGGGCGGGACGCGGCGCGCACCCGCAGGCTGCGCGTCAGCCACGCCTTCCACTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5219 GGACCCACCGCGTGGTCGTCTCCGGCGACGCGGACGCCGAGGAGATCCGCGCCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5159 GCCGAGGTCGTCGAGTCCCTGAAGGGCTACGAGGGCAGGGTCGCCGTCGCCGCCGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4919 GACCTCACCGCGTACACCCAGCCCCCCCTCTTCGCCTTCGAGGTGGCGCTGTTCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4859. GCCCTCGACCTCGACCGGCCGCCGCCGGGAGATCGTCGCCGCCGGGGAGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         715 CACATCGTGGCGGGGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   535 GARATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATT 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   355 AACCCGCCCCCCCCTGGACCTGCACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC
ACCACGGTCGAGGTCGCCGGCGGCGACGGCGTCCTGCTGACCGGCCGTCTCTCCCTGACC 5929
                                                                             ATGACCGGCCTGACCGCCGCGCGCTTCGGC-----CTGGCCGGGCGGCGGGCAGCTGCAG 1302
                                                                                                                                              GGGCAC----TATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAG
                                                                                                                                                                               GGGCGCCGCACGTACGCCTACGTACGCCTTCCGGCGCGAGCACTACTGGCTGACGCCC 5809
                                                                                                                                                                                                              GGCCTGCCGCACGAGGGCCCCGCATCCGCGCCTGTGGGGCACCTTCCCGGGGGTGCTG 1194
                                                                                                                                                                                                                                              GGTCTCGCGACCGCCCATGTCCACGGCGCACCCTTGGACCGGGCGTCGTTCTTCCCGGAC
                                                                                                                                                                                                                                                                            ATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGAC
                                                                                                                                                                                                                                                                                                              GACGTCACGGTCGTCCCGCTGCTGCGCGCGCGCGCGCCCCGAGCCCCGAGACCCTCGCCGCC
                                                                                                                                                                                                                                                                                                                                             GTCCTCACGGCACTCGCCGAGGAGGCTCTCGCGCCCGGCACGGCACGCCCCGGACGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTCCGCACCCTGGCCGCCCAGGACGCGACCGTCCTCGTCGAGATCGGCCCCGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --GCTCACCTCGCCGGGTACTGGGTCGACCAGATCCGGCGGCCCGTGCGCTTCCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCTGATCGAGGCCGCCATGGCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCGGATCCCCGTCGTCTCCACGGTCACCGGCGCGCGTCGTCACGTCCGGCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCGGCCGCTGAGCGCATGGCGGCATCTACGCCACCACATGCGCGACGAAGGCGAG
                                                                                                                 TGGTGCAAGCCCTTCCCCGAACTGAGCGGGGGGGGCGACCTGGATGAAGTCGCGGCCGAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGATCTCGCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACATGGACGACGTCCTCGACGAGTTCCTCCGGGTCGCCGAGGGCCTGACCTTCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOGACOGGCGCCTTCTACCCGCCGCCGCCGCCGCCACCACCAAGAGATCATCGAGGTG 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGACTACCTGGACGCGTTGCGGGCCACGCCGGCGGCGGTCAACGCCGCCTGTATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGAACACCACGGCCTCGTCCCCGACCTGCTCACCGGCCACTCCGTCGGCGAGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGTCACCACGGTGGTCACGGCAATTGCGGCATCAGCCTGGCGCCCCGCTGGCGCACGCC
                                                                                                                 5869
                                                                                                                                                 1248
                                                                                                                                                                                                                                                 5749
                                                                                                                                                                                                                                                                                1134
                                                                                                                                                                                                                                                                                                                                                                                                           1014
                  1359
                                                                                                                                                                                                                                                                                                                5689
                                                                                                                                                                                                                                                                                                                                                                              5629
                                                                                                                                                                                                                                                                                                                                                                                                                                             5569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4918
```

```
Ş
                                                            밁
                                                                                           Š
                                                                                                                               밁
                                                                                                                                                             Ş
                                                                                                                                                                                                밁
                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-988-3848-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-988-384B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 4.2%;
Best Local Similarity 43.2%;
Matches 586; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/09988384B Publication No. US20030073824A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Zhao, L.
TITLE OF INVENTION: DNA encoding methymycin and
FILE REFERENCE: 600.536US1
CURRENT APPLICATION NUMBER: US/09/988,384B
CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: PCT/US99/14398
PRIOR FILING DATE: 1999-06-25
PRIOR FILING DATE: 1999-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 09/105,537
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Sherman, D.H. APPLICANT: Liu, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                5039
                                                                                                                                                                                                                                                                  4979
                                                                                                                                                                                                                                                                                                                                                                                                      4859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH: 15872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5930
                                                                                                                                                                                                                                                                                                                                                                                                                                      235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175 GCCGCGCACACCCGGGTCGACGTGTCGGGGCCTGGTGGTCGCCCCGGCTTCATCGACTCG 234
                                                                                                                                                                                                                                                         CTCGAACACCACGGCCTCGTCCCCGACCTGCTCACCGGCCACTCCGTCGGCGAGATCGCC
                                                                                                                                                                                                                                                                                       AACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                            CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCCAAGATCTCGCAG
GCCGAGGTCGTCGAGTCCCTGAAGGGCTACGAGGGCAGGGTCGCCGTCGCCGTCAAC
                                                                                    GAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATT
                                                                                                                    GACCTCACCGCGTACACCCCAGCCCGCCCTCTTCGCCTTCGAGGTGGCGCTGTTCCGCCTC
                                                                                                                                                                                                                                                                                                                                                        GGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCGCTGGCGCACGCC
                                                                                                                                                                                                                                                                                                                                                                                              GCCCTCGACCGTCACCTCGACCGGCCGCTGCGGGAGATCGTCGCCGCCGGGGAGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGAGGAACTGCGCGCGCGCACCCCGTGTTCGCCGCCGCCCTCGACACCGTGTACGCG 4858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCTTCGAACACCCTACCGAGCGCGCCCCGCCATCCATTCCGTGTACGTCAACGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCGGCGACGGCGAGTCGCCGGCCGGCGCACCTTCG 6146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCG 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCCTCGAAGCGCCGCTCGTCCTGCCCGAGCGGGGGGGCGTCCGCATCCAGGTCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCCTGGAGCTCGCCCTCGCGGCGGCCGACCACGTCGGGGGGGCGGTCCGGGTGGAGGAACTC 6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCAGCCCTGGCTGGCCGACCACATGGTCAACGGCGCCGTCCTGTTGCCGGCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 73.8; DB 9;
Pred. No. 6.3e-08;
0; Mismatches 747;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 15872;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                     5218
                                                                                    594
                                                                                                                      5158
                                                                                                                                                                                       5098
                                                                                                                                                                                                                                                         5038
                                                                                                                                                                                                                                                                                         414
                                                                                                                                                                                                                                                                                                                          4978
                                                                                                                                                                                                                                                                                                                                                            354
                                                                                                                                                                                                                                                                                                                                                                                              4918
                                                                                                                                                      534
                                                                                                                                                                                                                         474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
```

RESULT 13 US-09-861-289-1

Sequence 1, Application US/09861289 Patent No. US20020110897A1

GENERAL INFORMATION:

APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
APPLICANT: Xue, Y.
APPLICANT: Zhao, L.
TITLE OF INVENTION: DNA en

DNA encoding methymycin and

pikromycin

```
S
                                                                    밁
                                                                                                    S
                                                                                                                                       밁
                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
   6110
                                                                    6050
                                                                                                    1420
                                                                                                                                       5990
                                                                                                                                                                       1360
                                                                                                                                                                                                        5930
                                                                                                                                                                                                                                                                                                           1249
                                                                                                                                                                                                                                        1303
                                                                                                                                                                                                                                                                         5870
                                                                                                                                                                                                                                                                                                                                            5810
                                                                                                                                                                                                                                                                                                                                                                            1195
                                                                                                                                                                                                                                                                                                                                                                                                             5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1075
                                                                                                                                                                                                                                                                                                                                                                                                                                             1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5630 GACGTCACGGTCCTCCCGCTGCTGCGCGCGGGGCCCCGAGCCCCGAGACCCTCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                             GAGGCCCGTACGGACGCCCGCGCACTCGGCTTCGACCCGGCGCGCACCCCGCTGCTGACG
AGCGGCGACGCGAGTCGCCGGCCGGGCGCACCTTCG 6146
                               GCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCG
                                                                                                                                TTCCTGGAGCTCGCCCTCGCGGCGGCGACCACGTCGGGGCGCTCCGGGTGGAGGAACTC
                                                                                                                                                                                               GACCAGCCCTGGCTGGCCGACCACATGGTCAACGGCGCCGTCCTGTTGCCGGCCACCGCC
                                                                                                                                                                                                                               GCCGGGTACT---TCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCC 1359
                                                                                                                                                                                                                                                                  ACCACGGTCGAGGTCGCCGGCGGCGACGGCGTCCTGCTGACCGGCCGTCTCTCCCTGACC
                                                                                                                                                                                                                                                                                                  ACCTTCGAACACCCTACCGAGCGCGCGCGCGCATCCATTCCGTGTACGTCAACGGCGCG 1419
                                                                                                                                                                                                                                                                                                                                                                     GGGCAC----TATGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGACGAACCCGACGTGCAGCGCATCCTGGCGTTCGGCCTCCGACCATGATCGGCTCCGAC
                                                               ACCCTCGAAGCGCCGCTCGTCCTGCCCGAGCGGGGGCGCCGTCCGCATCCAGGTCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                      GGGCGCGCACGGACCTGCCCACGTACGCCTTCCGGCGCGAGCACTACTGGCTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCTGCCGCACGAGCGCGCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTCTCGCGACCGCCCATGTCCACGGCGCACCCTTGGACCGGGCGTCGTTCTTCCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCCTCACGGCACTCGCCGAGGAGGCTCTCGCGCCCGGCACGGACGCCCCGGACGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --GCTCACCTCGCCCGCGTACTGGGTCGACCAGATCCGGCGGCCCGTGCGCTTCCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGATCTCGCACCACAAGGTCATGGGCCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGGCCGACCTGGATGAAGTCGCGGCCGAGCGC 1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTCCGCACCCTGGCCGCCCAGGACGCGACCGTCCTCGTCGAGATCGGCCCCGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCTGATCGAGGCCGCCATGGCGCCCAGGACGTCTCGCTGGACGCGTATCCCTACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCGGATCCCCGTCGTCACGGTCACCGGCGCGCGCTCGTCACGTCCGGCGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACATGGACGACGTCCTCGACGAGTTCCTCCGGGTCGCCGAGGGCCTGACCTTCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACATCGTGGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGGCGGGACGCGGCGCGCACCCGCAGGCTGCGCGTCAGCCACGCCTTCCACTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGACCCACCGCCGTGGTCGTCTCCGGCGACGCGGACGCCGAGGAGATCCGCGCCGTA
                                                                                                                                                                                                 5989
                                                                                                                                                                                                                                                                    5929
                                                                                                                                                                                                                                                                                                                                     5869
                                                                                                                                                                                                                                                                                                                                                                       1248
                                                                                                                                                                                                                                                                                                                                                                                                      5809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   774
```

```
밁
     밁
                                    Ş
                                                                                                             Š
                                                                                                                                                  밁
                                                                                                                                                                                    S
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-861-289-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 4.2%;
Best Local Similarity 43.2%;
Matches 586; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: FastSEQ for Windows Version SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/861,289
CURRENT FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 09/105,537
PRIOR FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
                                                                                                                                                    5452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 15872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4979 CTCGAACACCACGGCCTCGTCCCCGACCTGCTCACCGGCCACTCCGTCGGCGAGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175 GCCGCGCACACCCGGGTCGACGTGTCGGGCCTGGTCGCCCCGGCTTCATCGACTCG 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   235 CACACCCACGACGACAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAG
GTCCTCACGGCACTCGCCGAGGAGGCTCTCGCGCCCGGGACGCCCCGGGACGCCCGG
                                                                                                                                                                                                                                                                                                                       GECCATTCAACGCTGCGCGCCGCGGTCATGCCGGACTTGCAGCGCGCCGCCGCCACGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACCCGCCCCCCCCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCTCACCGCGTACACCCAGCCCGCCCTCTTCGCCTTCGAGGTGGCGCTGTTCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCTCGACCGTCACCTCGACCGGCCGCTGCGGGAGATCGTCGCCGCCGGGGAGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGAGGAACTGCGCGCGCGCACCCCGTGTTCGCCGCCGCCCTCGACACCGTGTACGCG 4858
                                                                                                      GCCGGCTCCACCATGCTCAAGCAGGACCGCGTGCTGGCCGGACGCACCATCATCACC
                                                                                                                                              --GCTCACCTCGCCCGCGTACTGGGTCGACCAGATCCGGCGGCCCGTGCGCTTCCTGGAC
                                                                                                                                                                                                                     CCGCGGATCCCCGTCGTCTCCACGGTCACCGGCGCGCTCGTCACGTCCGGCGA-----
                                                                                                                                                                                                                                                        GTGATCTCGCACCACAAGGTCATGGGCCCAGCCCAATTTCGGCCGCCTCGCGCGAGACGCTG
                                                                                                                                                                                                                                                                                                                                                                                                        TGCCGGCCGCTGAGCGCGCATGGCGGCATCTACGCCACATGCGCGACGAAGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                             GGACCCACCGCGTGGTCGTCTCCGGCGACGCGGACGCCGCCGAGGAGATCCGCGCCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGAGGTCGTCGAGTCCCTGAAGGGCTACGAGGGCAGGGTCGCCGTCGCCGTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAATCGCGGCCATGCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCCATCGGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGTCCGCACCCTGGCCGCCCAGGACGCGACCGTCCTCGTCGAGATCGGCCCCGACGCC
                                                                                                                                                                                 CCGCTGATCGAGGCCGCCATGGCGCCGCCAGGACGTCTCGCTGGACGCGTATCCCTACGTG
                                                                                                                                                                                                                                                                                              CACATGGACGACGTCCTCGAGGAGTTCCTCCGGGTCGCCGAGGGCCTGACCTTCGAGGAG
                                                                                                                                                                                                                                                                                                                                                                      TGGGCGGGACGCGGCGCGCACCCGCAGGCTGCGCGTCAGCCACGCCTTCCACTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGACTACCTGGACGCGTTGCGGGGCGCCACGCCGGCGGCGTCAACGCCGCCTGTATGGTG
                                  TGGTGCAAGCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGC 1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGTCACCACGGTGGTCACGGGCAATTGCGGCATCAGCCTGGCGCCCCCTGGCGCACGCC 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 73.8; DB 10
Pred. No. 6.3e-08;
0; Mismatches 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              747;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 15872;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
5629
                                                                                                                                              5509
                                                                                                                                                                                                                                                                                                                                                                                                                                             5278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4918
                                                                                                         954
                                                                                                                                                                                   894
                                                                                                                                                                                                                     5451
                                                                                                                                                                                                                                                                                              5398
                                                                                                                                                                                                                                                                                                                                                                      5338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4978
                                                                                                                                                                                                                                                          834
                                                                                                                                                                                                                                                                                                                                 774
                                                                                                                                                                                                                                                                                                                                                                                                        714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4;
```

```
В
   Š
                                      밁
                                                                     Š
                                                                                                                                              Š
                                                                                                                                                                                                                                                      LENGTH: 4257
; TYPE: DNA
; ORGANISM: HERPES VIRUS, TYPE 1
US-09-825-288A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멎
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-825-288A-1
                                                                                                                                                                               Query Match 4.2%;
Best Local Similarity 42.6%;
Matches 581; Conservative
                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn Ver. 2.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/09825288A Publication No. US20020192822A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/825,288A CURRENT FILING DATE: 2001-04-02 PRIOR APPLICATION NUMBER: 09/259,821 PRIOR FILING DATE: 1999-03-01 PRIOR APPLICATION NUMBER: 08/690,473 PRIOR FILING DATE: 1996-07-26 NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: LEOPANDI, ROSARIO
APPLICANT: ROIZMAN, BERNARD
TITLE OF INVENTION: HERPES SIMPLEX VIRUS ICP4
FILE REFERENCE: ARCD:317USC1
                                                                                                       1548 GGTCCCCGGGGACGTGGCCTGCACCAGGCCTGCTTCCGGGATCTCGGGCGCCGCGCGCAA 1607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1303
                                  1608 CAGCAGCTCCTTCATCACCGGCAGCGTGGCGCGGGCCGGGCCGACCTGGGCTACGCCAT 1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1015 GGCAAATCCAAGTACGACGTGGTGCCCGAGCTGCAGCCGGCGGCGCCCATCTACTTCATG 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1249 ATGACCGGCCTGACCGCCGCGCGCTTCGGC-----CTGGCCGGGCGCGGGCAGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1075 ATGGACGAACCCGACGTGCAGCGATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGAC
                                                                     249 CAACTACCTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGT 308
                                                                                                                                              189 GGTCGACGTGTCGGGCCTGGTCGCCCCGGCTTCATCGACTCGCACACCCACGACGA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGCAC-----TATGCGCGCGCACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAG
ACCTCGAAGCGCCTCGTCCTGCCCGAGCGGGCGTCCAGCTCCAGGTCCAGGTCCTGCTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCTTCGAACACCCTACCGAGCGCGCCGCCGCCATCCATTCCGTGTACGTCAACGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGGTACT---TCGCCGACCTGGTGGTGTTCGACCCGGCCACGGTGGCCGATACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCGGCGACGGCGAGTCGCCGGCCGGCGCACCTTCG 6146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCCTGAGCCCGGCGCCAGCCCTTACAATCCGGCG 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCAGCCCTGGCTGGCCGACCACATGGTCAACGGCGCCGTCCTGTTGCCGGCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCACGGTCGAGGTCGCCGGCGCGACGGCGTCCTGCTGACCGGCCGTCTCTCCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCGCCGCACGACCTGCCCACGTACGCCTTCCGGCGCGAGCACTACTGGCTGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCTGCCGCACGACGACGCCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTG 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTCTCGCGACCGCCCATGTCCACGGCGCACCCTTGGACCGGGCGTCGTTCTTCCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGTCACGGTCGCCGCTGCTGCGCGCGCGGGGCCCCCGAGCCCCGAGACCCTCGCCGCC
                                                                                                                                                                                   0
                                                                                                                                                                                                Score 73.4; DB 9;
Pred. No. 8.9e-08;
                                                                                                                                                                                 Mismatches 766;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AN INHIBITOR OF
                                                                                                                                                                                                                 Length 4257;
                                                                                                                                                                                 Indels
                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APOPTOSIS
                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5689
                                                                                                                                                                               Ψ
```

밁

2801

```
1203 TGCGCGCGACCTGGGCCTGTTCCCGCTGGAGACGGCGGTATGGAAGATGACCGGCCTGAC
                                                                                                                                                                                                                                                                                                                              1083
                                                                                                                                                                                                                                                                                                                                                             2382
                                                                                                                                                                                                                                                                                                                                                                                         1023
                                                                                                                                                                                                                                                                                                                                                                                                                       2322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2208 GCACGCGGACGCGCGCGCGCGCGCGCGCGGAGCTGCGGGTTCGTGCGCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2028 GCGCCGCCCAGGCCGGCCGCGTGGCCGTCGAGTGCCTGGCCGCCTGCCGGGGATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1848 AGATGACGAGGGGTCGCCGCCGTCGCCGCCGCCGCACCGGGCGAGCGCGCGGTGCCCGC 1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              843 CGAGGCCGCCATGGCCGCCAGGACGTCTCGCTGGACGCGTATCCCCTACGTGGCCGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          549 GCGGGACCTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTT 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      369
         CGAGCGCGCCGCCATCCATTCCGTGTACGTCAACGGCGCGCCGGTCTGGCAAGAGCA 1436
                                                                    GGTGGTGTTCGACCCGGCCACGGTGGCCGATAC-----CGCCACCTTCGAACACCCTAC
                                                                                                                               CGCCGCGCTTCGGCCTGGCCGGCGCGCGGCAGCTGCAGGCCGGGTACTTCGCCGACCT
                                        GCACGACGAGCGCCCGCATCCGCGCCTGTGGGGCACCTTCCCGCGGGTGCTGGGGCACTA 1202
                                                                                                                                                                                                                        GCCGCCGCCGCCTCCGCCGCGCGCGGGAGGGGCGCAAGCGCAAAAGTCCCGGCCC
                                                                                                                                                                                                                                                                                  CCAGAGCCTGCGCCCCCTGCTGGCGGCGGCGGCCAGCGCACCGGACGCGCCGACGCGCT 2501
                                                                                                                                                                                                                                                                                                                                             GCGGGACCCGCGCCTGCCGAGCTCCGCGGCGGCCGCGCGGGACCTGCTGTTTGACAA
                                                                                                                                                                                                                                                                                                              ACCCGACGTGCAGCGCATCCTGGCGTTCGGCCCGACCATGATCGGCTCCGACGGCCTGCC 1142
                                                                                                                                                                                                                                                                                                                                                                  CAAGTACGACGTGCGCGGAGCTGCAGCCGGCCGCCCATCTACTTCATGATGGACGA 1082
                                                                                                                                                                                                                                                                                                                                                                                                       CGCCGTGGCCGTGCGCGCGTGAGCCTGGTCGCCGGGGCCCTGGGCCCCGCGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGGTGCTCATG-----CGCCTGCGCGGGACCTGCGCGTGGCCGGCGGCAGCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCTTCCCCGAACTGAGCGGGCGCGACCTGGATGAAGTCGCGGCCGAGCGCGAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCATGCTCAAGCAGGACCGCGTGCTGCTGGCCGGACGCACCATCATCACCTGGTGCAA 962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCCCGCCAGCCCCCCGCGGCCGGAGGGACCCGGGGCCCCGCTTCCCCGCCGCCGCCC 2207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCACCACAAGGTCATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAGGCGCTGGCCGAAGGCTTCGACGGCGACCTGGCGGCCGTCCCGGGGCTTGGCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCGCGCTGGAGGAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTACCCGCCGCCG------CCGCGCGCACCACCGAAGAGATCATCGAGGTGTGCCGGCC 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGAGCGCGCATGGCGCATCTACGCCACCCACATGCGCGACGAAGGCGAGCACATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCGCCGGTCATGCCGGACTTGCAGCGCGCCGCCGACGAGGAAATCGCGGCCAT 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGTTGGCGCGCGAGAACGCGGCGCTGACGGGGGGCCGCGGGGGAGCCCCGGGGGGCGC 1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCGTTGCGGGCCACGCCGGCGGCCGTCAACGCCGCCTGTATGGTGGGCCCATTCAACGCT 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGGACCTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGA 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   = = = =
                                          2741
                                                                        1376
                                                                                                    2681
                                                                                                                                                              2621
                                                                                                                                                                                            1262
                                                                                                                                                                                                                         2561
                                                                                                                                                                                                                                                                                                                                               2441
                                                                                                                                                                                                                                                                                                                                                                                                                                       1022
                                                                                                                                                                                                                                                                                                                                                                                                         2381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2027
      S
                                     밁
                                                              Ş
                                                                                                                          δÃ
                                                                                                 밁
                                                                                                                                                           멍
                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
US-09-815-242-4056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ß.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 3189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                    499
                                                                 196
                                                                                               439
                                                                                                                                                         379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2862 CTACTGCTCCCCGCGCGCGCGTGGCCGAGCTCACGGACCACCCGCT 2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2742 CCCGCGCCCCTGGCCGTGTCGCGCCGGCCGGCCGAGGGCCCCGACCCCCTGGGCCGGCTG
                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGCCCTTACAATCCGGCGTGAACGGGGGGGGGGGGGCGCCCCT 1541
```

밁

963

밁 S 8 S Ş 몽

밁 S 밁 S 밁

S 밁 S 밁

1377 2682 밁

2502 1143 2442

1263

```
ORGANISM: Pseudomonas aeruginosa
US-09-815-242-4056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 4.1%;
Best Local Similarity 43.8%;
Matches 371; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No. Ubave
Patent No. Ubave
PATERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: FastSEQ for Windows Version SEQ ID NO 4056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/815, CURRENT FILING DATE: 2001-03-21 PRIOR APPLICATION NUMBER: 60/191,078 PRIOR FILING DATE: 2000-03-21 PRIOR APPLICATION NUMBER: 60/206,848 PRIOR FILING DATE: 2000-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 14110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA, 011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Haselbeck, Robert
256 CTGCTCAGGCGTCGCGACATGACGCCCAAGATCTCGCAGGGCGTCACCACGGTGGTCACG
                                                                                                                                                                                              319 GTGCAGGTGCAGAACCGCGTCACCCGGGACCGAGCCGGAAGCTCCCGGGAAGAAGTGACCCGG 378
                                                                                                                                                                                                                                                                                                                                                                       16 GCGGAAGGAGAGTTTCCATGTCCCAATCCGATTCCCAGCCCTTCGACCTGCTGCTCGCG 75
                                                                                                    GTGTCGGGCCTGGTGGTCGCGCCCGGCTTCATCGACTCGCACACCACGACGACGACAACTAC 255
                                                                                                                                                  CCGGATAACCGCTACGACATGCTCTACCTGTCGAACTACGCGGTGCTCAACGTGAAGGAC 498
                                                                GAACTGGCCGCCTCGACGCGTCGGCGACGTCCAGTTGTTCGGCCTCGGCGACTATTCG
                                                                                                                                                                                                                                       CTCGGCATCACCGTCGACAAGGCCTCGCCCGACCTGACCATGGTCGTGCACCTGACCTCG 438
                                                                                                                                                                                                                                                                                  US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yamamoto, Robert T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches 471;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 72.4; DB 10;
Pred. No. 1.5e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , 242
                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                       ٠<u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                      315
                                                                                                                                                                                                                                                                                       135
```

-

```
1153 GTGATGCA 1160
                                                                                                           1093 TGGCGCGCCTGATCATCCCGCTGGCCGCGGTGCCGGTGTCGCTGATCGGCACCTTCGCG 1152
                                                                                                                                                                                                                      736 GAAACCTTCCGCATCGGCCGCGAGCTGGACGTGCCGGTGGTGATCTCGCACACAAGGTC 795
                                                    856 GCGCGCCA 863
                                                                                                                                                                  796 ATGGGCCAGCCCAATTTCGGCCGCTCGCGCGAGACGCTGCCGCTGATCGAGGCCGCCATG 855
                                                                                                                                                                                                                                                                                                                                              979 TCCATCGTCTACGACCCGCCACCATCTTCGTCCGCGG------CTCCATCGAGGCGGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                      676 GGCGGCATCTACGCCACCCACATGCGCGACGACGAAGGCGAGCACATCGTGGCCGCGCGCTGGAG 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                               919 AACCTGGTGCGGGAGAAGATGGCCGAGCTGAAGCACAGCTTCCCGCAAGGCATGGACTAC 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          496 GCGGTCATGCCGGACTTGCAGCGCGCCGCCCACCGACGAAATCGCGGCCATGCGGGAC 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       739 GAAGAGTTCGAGAACATCATCATCCGCGCGCGCGCCAACGGCGAGATCACCCGTCTGCGC 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  436 CGGGCCACGCGGGGGGCGTCAACGCCGGCCTGTATGGTGGGGCCATTCAACGCTGCGGCC 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        679 GCGCCGAGCGATACCAGCTTCCAGTTGTCGATCAACACCCAGGGTCGCCTGGTCACCGAG 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   376 CTGCTGGACGAAGGCGGCTCTTACCGTTTCGAGCGCTTCGCCGACTACCTGGACGCGTTG 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619 GTCAACGCCATCCGCGAGCAGAACCGCCAGGTCGCCGGCACCCTGGGCGCCGCCGCCG 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    559 CTGCGCGTCTGGACCCGAACAAGGTCGCCTCGCGCAACCTCACCGCCACCGACGTG 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    859 AAGCCGGCGGTGGCGATCCCGATCTTCCAGCGTCCCGGCTCGAACGCCATCGAGATCTCC 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            556 CTGGCCGAGGAAGCCATGGCCAGCGGCGCCATCGGCATTTCGACCGGCGCCTTCTACCCG 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     799 GACATCGCCCGGGTCGAGCTGGGCTCCAACCAGTACGCCCTGCGTTCGCTGCAGCAAC 858
                                                                                                                                                                                                                            1092
                                                                                                                                                                                                                                                                                                                                                 1032
```

Search completed: May 11, 2003, 12:09:59 Job time: 447 secs